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SPUN·LO

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Editor: Douglas G. Woolf

SHRINK and SELL

AT THE start of a year in the "good old days," textile manufacturers were interested primarily in the answer to one question: How is business going to be this year? If a fairly accurate answer was forthcoming, an equally accurate estimate of profits could be made.

Today, that question is incidental. Even if the volume of textile business in 1932 could be forecast exactly, no prediction could be ventured as to financial progress.

Before a predictable relationship between these two factors can be re-established, the industry must first solve the problem of how to make a profit, irrespective of volume.

It is of no avail to dwell upon the frustrated hopes of 1931. Nor will it help to set up new hopes based on expectations of "better business" in 1932. Any such prospect, in textiles, is extremely unlikely. The only "better business" that can be looked for—or rather worked for—is a more satisfactory profit on a volume somewhere close to that of 1931.

◆

Toward that end, it seems to us, there are still two major lines of thought and action to be followed.

One is to forget past glories.

As a nation, we are proud of the fact that we have taken our medicine: that we have discarded dreams of 1929 for realities of 1932.

In textile manufacture, however, there is a more difficult transition still to be achieved. There are no textile dreams of 1929. The industry's golden era dates back to 1919. Those are the "dreams" that must be forgotten.

No one—not even a stockholder—is interested in the volume of goods produced, and the profits realized, in 1919. Everyone—and particularly a stockholder—is interested in the profits that can be made in 1932.

The size of a mill, in itself, has little bearing on this. In this issue, there is a story of a company which made profit on 300 looms whereas before it had consistently taken a loss on 1,200 looms. We think of another mill which, during the last four years, has "shrunk" everything except net profits. Often, ability to turn out more goods merely means opportunity to take greater loss.

The "shrinkage" we have in mind, however, does not necessarily involve actual curtailment of plant. It may mean primarily a deflation of ideas, whereby the "plant" considered in all calculations is merely that part whose product can be sold. But whatever form it takes, the thought should be kept in mind that the goal is a profit—and that shrinkage is not a backward step if profits are inflated in inverse proportion.

◆

The second line of thought and action is closely allied with the first. Prices are still determined largely by what mills can make—and unfortunately, in many cases, what they do make. Until prices are based on the cost of producing what can be sold, there can be little hope for profits generally.

So back we come to the old obstacle. Many mills have hurdled it. The stories of just a few of them are told in the pages that follow. But the percentage of the whole is still small.

Eventually, of course, the industry as a whole will make money. It is not "in the cards" that a basic necessity will be supplied permanently at a loss. But, we take it, the mills now in existence are not interested in what others may do some day; they naturally feel they have a right to participate now in a profitable business.

If they are to exercise that right, the first move is: Shrink and Sell.

The Year in Textiles

as Reflected in This Issue

Last year's Annual Review and Forecast Number dealt with principles. This year's Number deals with the application of those principles.

As we stated a year ago, the textile industry has laid the foundation for a stronger edifice. The completion of the work is now largely up to individuals. If they so reconstruct their own organizations as to make them economically sound parts of the structure as a whole, the future of the industry will be assured.

The year 1931 was a disastrous one. It brought problems few, if any, could have foreseen. In textiles, despite increased volume of business, the year was marked by general demoralization.

Nevertheless some firms made progress. How?

In an effort to answer that question, the editors have devoted considerable space in this issue to an analysis of the jobs done by such companies. This marks the next logical step in a continuing editorial program which had its inception in our first "Editorial Inventory" published in January, 1930.—*Editor.*

Statistical Picture

Textile mill activity in 1931 was 5% above 1930, based on total fiber consumption. Wool and rayon showed large gains. Statistical position sound, but price situation demoralized. Depression psychology in setting prices more than offset possible gains through production control. *(page 80)*

Dr. Haney's Forecast

Left to itself business would lay basis for sustained recovery beginning the latter part of the year, in the opinion of Dr. Haney. Confidence is necessary. Textiles in general have been sliding down since July, but elements of strength will lead to upswing in fall with August as possible bottom. Cotton, wool and silk analyzed individually. *(page 82)*

Employment Stabilization

Concentration of textile industry in certain localities and seasonal markets make problem of employment stabilization particularly necessary. Must be approached on basis of individual manufacturer. Only real hope lies in development of executive state of mind which will lead to assumption of obligation to provide steady employment, states Dr. G. W. Taylor. *(page 84)*

Fundamental Developments

Cooperative accomplishments in 1931 furnish brilliant contrast to unsatisfactory profits. Industry-wide merchandising promotion a highlight. Successful conclusion of night work movement in cotton mills a feature. Individual action by product groups recommended for rendering coordination more effective. *(page 87)*

New Outlets

Photographs illustrate extent to which old fibers find new markets through development of attractive specialties. *(page 88)*

Individual Accomplishments

Textile mills have made money in face of trying conditions. Series of "case-studies" analyzes jobs done by certain representative companies. One of major conclusions drawn by summary of these examples is that intelligent merchandising has represented difference between failure and success. *(pages 90 to 117)*

Wages and Strikes

General textile wage lowered on average of 10%. Employer-employee relations show improvement on basis of mutual understanding, but number of unfortunate strikes make blot on the picture. *(page 118)*

Britain's Textile Tariff

Ad valorem duty of 50% on all principal types of textile manufactures virtually cuts off imports into England. American manufacturers will not suffer as greatly as German and French exporters, but markets for such items as corset cloth and hosiery will be missed. *(page 120)*

He's in Again

Jack Card crashes the gate with a letter to the editor. 'Nuf sed. *(page 121)*

Cotton Goods

Profitless selling must be corrected if persistent demand for cottons is to be capitalized, says George A. Sloan. Price recovery is the magic wand. *(page 122)*

Cotton Spinning

Revolutionary ideas lacking in the cotton spinning this year, but many notable improvements were made to existing machines. Long drafting appears to be nucleus for future cotton machinery developments. *(page 124)*

Cotton Weaving

Important advances have been made in design of looms, but there is still great opportunity for improvement. Future looms will be faster and quieter. *(page 125)*

Cotton Prospects

Cotton trade looks forward with considerable optimism, tempered by caution dictated by record-breaking surplus. Crop for 1932 estimated at 11,000,000 bales and, with business recovery, surplus would be substantially reduced, leading to uptrend in price. *(page 126)*

Woolen Spinning

Woolen spinners have been obliged to cheapen their yarns in order to meet

the exceedingly low prices now prevalent. As a result they have had to overcome many new problems in their technical operations. *(page 128)*

Worsted Spinning

Many worsted fabrics now enjoying popularity require yarns of high twist. Spinners are finding that the increase in turns per inch necessitates greater uniformity in the product of each process. *(page 129)*

Wool Weaving

While mechanical progress in the wool weaving industry remained at comparative standstill, changes in style kept designers on the alert to secure attractive novelty effects at minimum cost. Smooth-faced fabrics expected to be favored in the spring. *(page 130)*

Wool Trade

Raw wool trade demonstrates old-fashioned virtue of asking fair price when demand is good. Sane selling makes generally profitable year, as contrasted with fabric manufacturers who met demand, but, in doing so, muffed profits. *(page 131)*

Silk Throwing

Recent market conditions have forced silk throwsters to turn to mechanical and chemical research for the solution of their problems. Beginning of a machine era in silk soaking is marked by introduction of new types of equipment. Apparatus for determining nature, elongation, and breaking strength of raw silk has been developed; and a new method for measuring evenness is in the metamorphic stage. *(page 132)*

Silk Weaving

Replacement of obsolete machinery with modern equipment particularly necessary in the silk weaving industry, where many technical advances are noted. In many cases modernization has been accomplished by attaching improvements to old-type machinery. *(page 133)*

Rayon Production

Domestic synthetic fiber production for 1931 estimated at 144,350,000 lb.; world production at 467,505,000 lb. Consumption in this country well above production. *(page 134)*

Rayon Manufacture

A significant development in synthetic-fiber industry is commercial production of cuprammonium rayon by a new method which permits spinning, washing, drying, and twisting of the yarn in one continuous operation. Late last year a new entrant started manufacture of acetate yarn by a modified method. While the spool-spinning method still gains favor in viscose manufacture, simplification of the pot-spinning method has also taken place. *(page 136)*

Rayon Finishing

Problems engendered by the increased use of staple fiber and rayon waste have been solved satisfactorily. Steps now being taken to curb weighting of knitted rayon underwear fabrics give promise that practice will be abandoned. Refinements have been made in methods for processing acetate lining fabrics, treating rayon crepes, and dyeing yarn in skein and package form. *(page 136)*

Knitting

Good deal of inventive genius applied in the knitting machinery field last year. Dictates of fashion have been instrumental in stimulating activity in this phase of the industry. Review covers new developments in full-fashioned hosiery, and in flat, circular and warp outerwear and underwear. *(page 138)*

Machinery Sales

Dollar volume of sales of textile equipment in 1931 estimated at approximately 15% below 1930, which in turn was about 33⅓% below 1929. Manufacturers not optimistic for 1932; best average prediction is volume about on par with last year. *(page 140)*

Machinery Developments

Stimulated by necessity for building machinery for replacement rather than expansion, equipment builders continued to introduce many new and improved machines during 1931. The effect, contrary to what might be expected at first thought, is likely to be a solution to the problem of textile overproduction. *(page 142)*

Power and Engineering

Higher efficiency in operation of power plants follows metered combustion control. At same time, lower manufacturing costs result from employment of byproduct steam, use of heat exchangers, and recovery and utilization of waste heat. Developments in engineering include acceptance of fusion-welded boiler drums, application of mercury-vapor vacuum tube, and growing use of stainless steel in textile machinery. *(page 146)*

Wet Processing

Steady progress in substituting scientific procedure for empirical practice spells doom of rule-of-thumb methods in bleaching, dyeing, finishing, and other textile processes. Preshrinking of cotton fabrics and continuous carbonizing of wool goods still gain favor. Other developments. Fundamental and applied research continues unabated *(page 148)*

Mill Modernization

Modernization of existing buildings rather than construction of new plants is indicated. Replacement of obsolete with up-to-date machinery, reorganization of mill to give straight-line flow of work, and adjustment of load on power plant are factors receiving attention. Engineers decry haphazard modernization program. *(page 151)*

Market Reviews and Forecasts

Analyses of outstanding developments and trends in individual textile markets during 1931, with bearing on 1932. Record crop and lowest price since 1898 feature cotton market. Surplus carries problems into 1932. Prices so awful in goods market that the reaction should lead to some sanity. Raw wool presents refreshing picture. Japanese situation complicates silk outlook. Rigid economy indicated for rayon producers. Knit outlook mixed. Dyestuffs go smoothly. Textile stocks drop. *(Begins page 159)*

Sure It Has a Theme

A FRONT cover may be decorative, or it may be thematic. In exceptional cases, it may be both.

Believe it or not, the front cover of this Annual Review and Forecast Number has a theme. We didn't intend to mention what, to us, was an obvious fact. But, after showing the layout to men "in the shop"—not only hard-boiled salesmen but members of our own editorial staff—we found that recognition of the theme was not as unanimous and instantaneous as might be desired.

And the theme is too important to risk its being wasted. It is, in fact: merchandising.

Now go on with the story from there.—*Editor.*

•

(We are indebted to the Durene Association for supplying the knitted mesh fabric used in the photograph and to Cheney Bros. for the transparent velvet and the printed flat crepe. Photo by Ritasse.)

Profitless Prices a Blot on Otherwise Improved Textile Statistical Picture

WITH the general level of textile activity 5% higher in 1931 than in 1930, on the basis of fiber consumption, it is apparent that the industry sneaked around the corner about a year ago last September, with few noticing the phenomenon. As cotton dominates total fiber consumption the actual betterment was greater than 5%, when due weight is given to the 20% increase in wool consumption and the 47% gain in rayon usage. While still about 19% below 1929, past figures show 1931 not much below normal.

Wool made the most spectacular advance in consumption of the older textile fibers. For the entire year 1931, consumption was 513,743,129 grease lb., as against 430,103,818 in 1930. If it were not for the fact that the carpet industry continued dull the increase would have been even more sensational, since the worsted business enjoyed the best demand since the post-war boom.

The increase in cotton consumption was not spectacular, amounting to only 23,000 bales for the twelve months, but from the way most people talk about 1931 any commodity which showed an advance deserves a few medals. Silk did so comparatively well in 1930 that it is no surprise to find that 1931 barely exceeded the previous year's total. Rayon consumption is estimated to have improved 47%.

Cotton Goods Prices Discouraging

When statistics for cotton goods production, unfilled orders and stocks are examined, 1931 looks good. When the price chart is examined, however, it looks bad. Stocks dropped from 363,962,000 yd. to 290,248,000, and unfilled orders rose from 288,956,000 yd. to 322,039,000, but the spread between spot cotton and 64x60, 5.35, 38½ in. print cloth, on a poundage basis, was approximately 18c. at the beginning of the year and 11.5c. at the end. The only possible explanation is failure to take advantage of the situation and demand fair prices.

About the only bright spot occurred in the spring when a decline of stocks since the first of the year amounting to 90,000,000 sq.yd. led to an increase in manufacturing margin. After that, however, manufacturers seemed to become immersed in depression psychology and forgot that it was possible to sell at a profit.

Any satisfaction which can be gained from the stock situation is dispersed by price considerations. It is difficult to realize that new orders for 1931, as reported by the Association of Cotton Textile Merchants of New York, were 116,517,000 yd. more than 1930, that production was 35,291,000 yd. less, and that prices were so much worse. There is hope, however, in the fact that the latter part of the year showed a strong movement towards further curtailment. The lesson of 1931 seems to be that when the general feeling of bad business is in the air, curtailment must be far more drastic than would ordinarily be effective.

Carded yarn figures offer pleasanter reading. On Jan. 7, 1931, the spread between spot cotton and 20s-2 K.P. warps was 11.25c. On Dec. 29, it was 9.45c., a decidedly better showing than that made in print cloths. By and large, the industry stuck to curtailment and realized some, though not all, of the benefits. Stocks declined from 13,531,000 lb. at the beginning of the year to 9,832,000 lb. at the end of November. Curtailment was more effective in the early part of the year and unfilled orders rose, only to fall later so that the total at the end of October was 6,000,000 less than at the beginning of the year. The ratio of stocks to unfilled orders, however, was better, being 1:3.3 against 1:3.

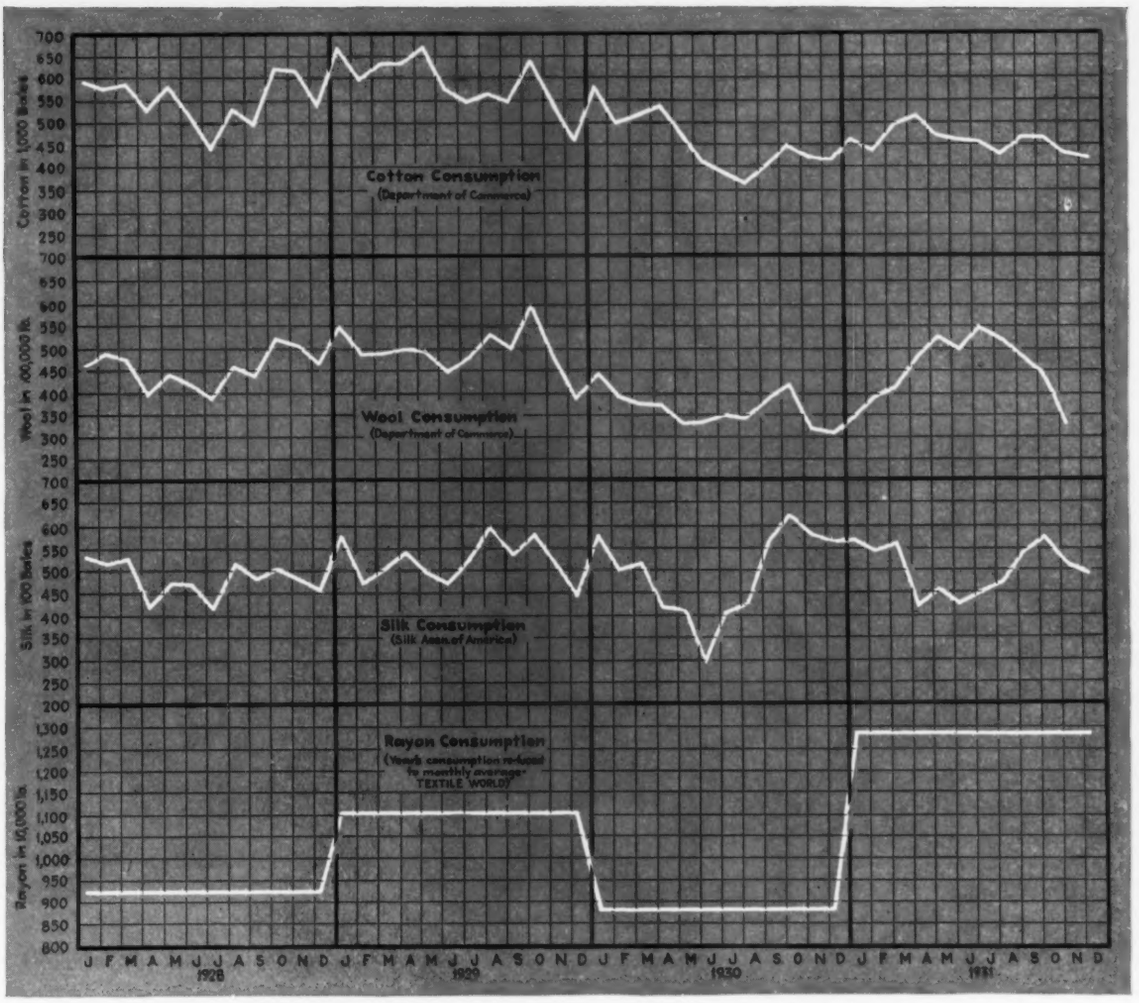
Wool Very Active

Combs and worsted spindles operated in mid-summer at the highest rate of capacity since the post-war inflation; the demand for domestic wool was the greatest in many years; wool dealers found 1931 largely profitable. With the best opportunity to make money in a long time it must be admitted that worsted manufacturers, by and large, muffed the chance. Although there were many complaints about the woolen business the fact is that woolen spindles operated at 58% of capacity for the first eleven months of 1931, against an average of 56% for 1930. The demand for wool in women's wear was good.

Viewing the charts for the woolen and worsted industry the most obvious conclusion is that manufacturers did not sense the demand soon enough to take advantage of it. Orders were taken at the same, or lower, prices than had prevailed when business was slack. By the time the mills realized that conditions were really excellent, the abnormal demand had already begun to slack off. Once again the trade seemed to sense the situation too late, with the result that enough mills continued to run heavy schedules to pile up stocks which contributed to the price demoralization of the fall.

Since the demise of the Wool Institute there has been a total lack of statistics on woolen and worsted cloth orders and production, and this is a contributing factor in the failure of the industry to sense market trends. Examination of the mills which made a profit in 1931 reveals that clever merchandising was the greatest factor. The *average* manufacturer's "hunches," however, are not accurate enough to make up for the lack of current, enlightening statistics.

Fortunately, the latter part of the year saw a fair



Four-year consumption curves of major textile fibers

portion of the "grief" cleaned up and it is to be hoped that the same spirit which put "National Wool Week" across will lead to sounder merchandising.

Silk Has Jumpy Year

Deliveries of raw silk averaged over 49,500 bales for the individual months of 1931 as against an average of 48,000 for 1930. With the exception of 1929, when the average was 51,000, the 1931 showing was the best on record. Abandonment of the gold standard by Japan on Dec. 13 forced all prices on the futures exchange below $2, the lowest level in history, but trading was small until the demoralized condition was righted and it was not long before prices started to climb.

Silk fabrics had a hectic time the first half of the year, but some sense was injected into the situation during the fall and curtailment met with moderate success in the line of firmer prices. At the end of the year some of the evils of overproduction and design piracy had been halted, but much hard work remains.

Due to the varying number reporting, the statistics on silk machinery activity are difficult to analyze. The figures show an average operation of spindles of 52% for the first eleven months, against a 63% average for 1930, but as deliveries showed no such drop it is apparent that percentage of operation figures give a distorted picture.

Good Rayon Demand

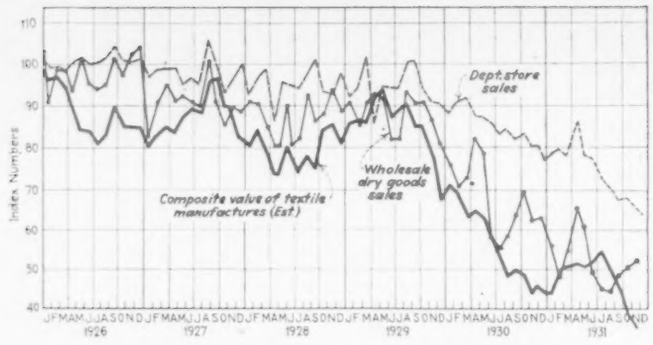
Rayon met with record-breaking demand in 1931. Once again, however, the profit situation was not satisfactory. It is none the less a great pleasure to report that the cut-throat competition, which marked 1930 and the early part of 1931, has largely disappeared. As noted elsewhere in this issue, the estimate of TEXTILE WORLD places 1931 domestic consumption of rayon at 154,350,000 lb.

The hosiery industry is not out of the woods, but progress has been made in cutting stocks. The dizzy variation of prices makes infinite caution necessary.

By contrast, the knit underwear group presents a satisfactory picture. Perhaps because manufacturers in this line have been so seriously threatened they have made a real effort to produce new lines and keep inventories at a reasonable level. Demand held at about the same figure that has prevailed for several years, but production was held down and stocks were 1,226,000 doz. garments on Oct. 31, against an average of 1,577,000 during 1930. Cooperation paid dividends to the knit underwear group.

An Old Conclusion

There are relatively few flaws in the textile statistical picture. Production has been largely held within bounds and stocks are not excessive. Demand, during 1931, was not much below normal. Compared with other lines of business, textiles fared well. The large bird in the ointment is a price level which does not produce profits for the majority. All that seems needed is a consolidation of the gains which have been made and a realization that the need for curtailment is ever present, but that curtailment is not an end in itself. It is merely a means to secure adequate prices—and adequate prices do not fall as the gentle rain; they must be demanded.



GENERAL TEXTILE BAROMETER

Wholesale Dry Goods Sales—Adjusted for seasonal variation; 1922-1926 average = 100; (Federal Reserve Board) Dep't Store Sales—Adjusted for seasonal variation and long-time trend; (Federal Reserve Board index which allows for revised seasonal and number of days used from Oct., 1929, on) Composite Value of Textile Manufacturers (Estimated)—Weighted composite of cotton, wool, and silk machinery activity adjusted for seasonal variation and price levels (N. Y. University, Bureau of Business Research).

Return of Confidence Is a Necessary Prelude to Recovery

By Dr. Lewis H. Haney

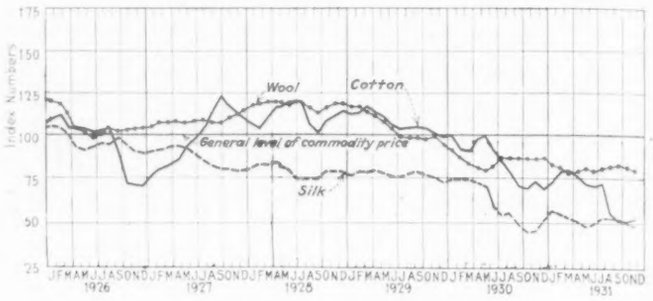
Director, New York University
Bureau of Business Research

THE immediate outlook for business in general is utterly uncertain, chiefly because of continued attempts to adopt artificial relief measures and stimuli. When business is left alone, one can figure things out fairly well. In due course, values and prices become so generally attractive and the urge to make money becomes so effective that expansion in business develops in a sound way. When, however, everyone is made to think that business recovery depends upon various credit-engineering feats, the situation becomes disturbed and economic forces are perverted.

Experiments with inflation or other panaceas may not succeed in taking effect. If they do become effective, they might bring only temporary and illusory recovery. Inflation might become effective, and, could it be checked in due time, might speed recovery if it were adopted at the exact bottom of the cycle. Even so, it would be a dangerous experiment and amount to a mere gamble as to the time for natural recovery. At present, that time does not appear to have been reached. At least, it is highly uncertain, as is indicated by the fact that many sound economists are unable to hazard a guess as to the exact outlook for the year 1932.

My opinion is that, *left alone,* business would begin to make a sustained recovery by the end of this year. This would seem most probable after the uncertainties attending the coming political campaigns had been removed. Some seasonal response to the usual quickening forces of the spring is to be expected, though we may doubt if this will amount to the full normal gain. Extreme dullness seems probable throughout most of the summer.

Without inflation, it is my opinion that so much liquidation and deflation has been accomplished that before the end of 1932 the basis would be laid for a sound recovery,—one that would proceed from a basis of equilibrium and could, therefore, be sustained.



TEXTILE PRICE LEVELS

Chart shows how chief textile fibers compare (1) with the general level of commodity prices and (2) with each other. The 100 = average of all commodity prices, and fibers are normally priced when near the general level. The several fiber price curves are so placed that normally they should be close together.

Favorable Factors

Elements tending toward improvement follow:

In the first place, there has been a thorough liquidation of public interest in the stock market and in speculative credit as measured by brokers' loans. People are through with gambling and are ready to get back to business. Thrift and saving are again in the saddle.

In the second place, production in many industries has been well curtailed and has been curtailed for a long while, so that stocks of manufactured goods with few exceptions have been materially reduced.

In the third place, the commodity price structure is in a sounder position and many raw materials are probably below their normal price levels—certainly below cost of production. This has been an essential readjustment resulting from post-war deflation of credit.

In the fourth place, the money wages of laborers are at least partly deflated, and perhaps completely so in the case of many unorganized laborers. As in the case of commodities, the price of labor must probably be reduced to a level which will make it possible to furnish profitable employment to more laborers. (This need not reduce the average standard of living.)

Finally, in the fifth place, it should be emphasized that the capital value of industrial plant and equipment, improved real estate, and farm land, has been considerably deflated. The process is not complete in all cases, but already we hear of plants, properties and farm land being taken over at reduced prices so the new operator can make a profit.

The industries of the nation are passing through a sort of receivership process in the course of which economies will be adopted, efficiency increased, and a sound basis of capital value be established, thus allowing the resumption of activity at a profit, despite lower prices.

These developments are the normal way out of a business depression,—the way to get back to normal business.

Unfavorable Factors

More specifically, the existing condition is subject to the following limitations:

First, credit in general is not on a sound basis, and doubts even exist as to the future stability of the value of the dollar. All this is expressed by the common talk about "lacking of confidence." Too much Government credit is being put out in the shape of bond issues and loans to farmers and others. The Government's budget is not even balanced, and the fluctuations in Government bond prices indicate the existence of an unfortunate speculative element in their value. The Federal Reserve system is not in as easy a position as some maintain. It will probably have to provide the market for large Government bond issues. The volume of loans to the member banks is already great. There is some reason to mention the possibility of considerable gold withdrawals on the part of foreign interests. Nor are the member banks in a liquid condition. Their security loans, though largely reduced, are still abnormally great and are certainly not in a desirable position as to liquidity. And back of all lies the fact that too many people are still in debt or are carrying large paper losses.

In the second place, a good many commodity prices are still poorly adjusted and out of line as judged by their usual relation with commodity price averages.

In the third place, wage rates of some organized groups of labor do not appear to have been sufficiently readjusted to enable employers to show the minimum necessary net earnings.

In the fourth place, much financial reorganization and recapitalization remains to be carried out.

Finally, foreign trade is out of gear, and fluctuating exchange rates (notably sterling exchange) tend to paralyze international dealings.

Some or all of these maladjustments will probably have to undergo further correction before a normal recovery

WOOL MILL MARGINS AND ACTIVITY

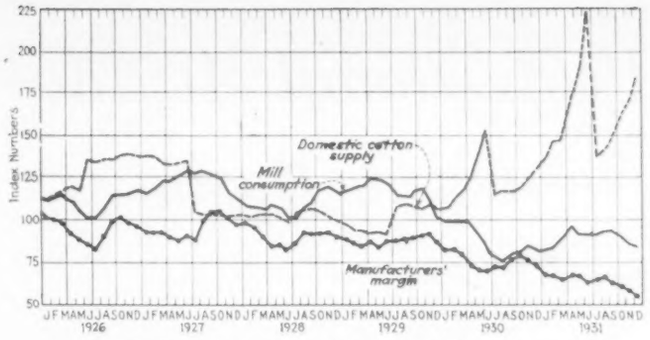
Wool Manufacturers' Margins—Average of replacement margins; Wool Machinery Activity—Composite of loom and spindle activity, adjusted for seasonal variation; Average 1923-1927 = 100 for both indexes.

in business can occur. If this be true, it would mean some months of further liquidation.

General Textile Outlook

It has long been pointed out by the TEXTILE WORLD Analyst that the textile industries move in a cycle of their own which has a period of approximately two years. For example, the recent "peaks" in the composite index of textile manufacturing activity came in 1927 (August), 1929 (May), and 1931 (July). Now we find the textile industries as a whole in a declining phase of their cycle. Broadly speaking, these industries have been reactionary since July last year. In November, the composite index of machinery activity stood at the lowest point since August, 1930.

Precedent now suggests some further recession in textile manufacturing. In the past, such recessions have



GENERAL COTTON BAROMETER

Consumption—Average daily adjusted for seasonal variation, three-month moving average: Manufacturers' Margin—Average of replacement margins; Average Monthly Available—Net domestic available for crop year adjusted for seasonal variation. 1921-1926 = 100 for all indexes

often lasted about 13 months,—say from 11 to 15 months. In the present instance, therefore, there seems to be little hope, insofar as precedent is concerned, that sustained recovery will come before next fall. The bottom might be expected about August.

We may also note that the trend of the estimated total value of all cotton, wool, and silk textiles produced (that is, production × price) has been downward since last July. This indicates that production has not been curtailed sufficiently to restore price strength.

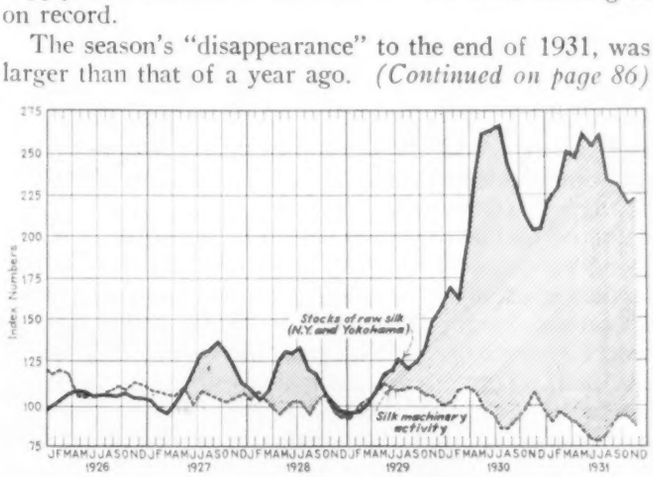
But, rough as such measurements must be, they do indicate that a stronger position is being gradually established. The value of textile production is low in comparison with wholesale dry goods sales. In their turn, wholesale dry goods sales are low in comparison with department store sales. A condition is thus developing which should provide a market for increased textile production at better prices.

There is reason to believe that, once consumer purchasing power begins to pick up and retail trade to increase, there will be a sharp expansion in the dry goods trades and in textile production and value.

Cotton

The supply situation in raw cotton is easy as the new year begins, while consumption is subnormal. The world visible supply of all grades of cotton and the world visible supply of American at the end of 1931 were the largest on record.

The season's "disappearance" to the end of 1931, was larger than that of a year ago. *(Continued on page 86)*



RAW SILK STOCKS AND MACHINERY ACTIVITY

Stocks—N. Y. and Yokohama, adjusted for seasonal variation, three month moving average; N. Y. Stocks, Silk Association; Yokohama Stocks, H. L. Gwalter & Co. Machinery Activity—Composite of spindles and looms adjusted for seasonal variation, Silk Association. Average, 1923-1927 = 100 for both indexes.

Professional Attitude Needed in Business to Effect Employment Stabilization

By Dr. George W. Taylor

Wharton School of Finance and Commerce, University of Pennsylvania

THERE are histrionic advantages in saying boldly that American rugged individualism will point the way out of present industrial difficulties. Even the most resourceful of the rugged individualists, however, are finding themselves unconvincing as they frame replies to the insistent query: Why are there no jobs? In the midst of the third winter of unemployment we may expect a close scrutiny of those achievements of competitive industry that point toward employment stability. This interest will be general, but it will very likely have legislative objectives also.

It is evident that most manufacturers are concerned with policies that they hope will lead each business to profitable operation; it is also evident that they hardly recognize the task of employment stabilization as a function of management. There are few industrialists, indeed, who assume the obligations that were undertaken by the German manufacturer, August Thyssen. He placed himself in the position of a "weary Titan summoned by Providence to sustain 5,000 homes." Although such an attitude might be denounced as paternalistic, it does not represent the evasion of social responsibilities that can be so respectably accomplished under the cloak of rugged individualism.

In the textile industries one sees evidences that the objective of stabilizing employment is relatively unimportant in the determination of general business policy. To be sure, such policies as manufacturing only against orders appear to be necessary in order to decrease stocks on hand. There is considerable justification for this method of manufacturing; particularly in industries of styled products. The fact that surplus equipment and surplus workers have been allowed to develop in most industries now makes it almost imperative to match hand-to-mouth buying of styled products with their hand-to-mouth manufacturing. Naturally, the result in many industries has been seasonal operation that is increasing in intensity. The consequent insecurity of employment is a condition that has important, if somewhat different, implications than is embodied in the unemployment instability problem itself.

Particularly in the textile industries have unemployed machines led to the development of styles, fads and fancies. The relation of idle machines to the creation of new styles is a factor that is seldom recognized in the study of style trends. While certain styles may actually increase consumer demand, the surge of new styles into many industries makes employment stabilization a more difficult problem than ever. It is significant that the process of manufacturing against order and the development of new styles are seldom related to the employment instability situation.

Stabilization is Employer's Responsibility

All of which conveys the idea that management generally is not conscious of the fact that at least certain aspects of employment stabilization are a part of the social responsibilities of the employer. In so many plants, unquestioned reverence is given to certain sacred cows —and sacred calves. Of major importance is the holiness of the 10% profit, or more, which demands that wage rates be cut, and conditions be changed in order to make certain the contemplated profit. Proper reserves for depreciation on machinery are held to be necessary, although the provision of reserves for depreciation on men is not generally considered as a claim on industry. And yet, certain managements probably deserve no profit at all because they perform their tasks badly. Business policies have been developed with little or no idea of stabilizing employment, but with a view to securing the profit considered as the right of ownership.

In the year of depression 1932, one begins to understand the elements of Thyssen's idea—that industrial ownership and management is not a key to privileges and a claim to profits. Rather it represents a trust and a heavy obligation to provide employment as well as to produce goods.

Obviously the obligation of management to employees is not keenly felt in times like the present when the bargaining advantages of management in making the labor contract are so pronounced. Labor is still purchased by many manufacturers as though it were a commodity. This, despite the protestation of the Clayton Act, and in forgetfulness of the dictum of economists that labor is not a commodity. It has been written that when bricks are purchased it is immaterial whether they are used in making a palace or a sewer, but the status of labor is an important element of the labor bargain. So long as the purchase of labor is viewed in the same light as the buying of material, it will be impossible to hope that continuity of employment will be made a major purpose or by-product of industry.

The foregoing is by no means a complete explanation of the state of mind of American industrialists that makes it difficult to progress in the stabilization of employment opportunities. Moreover, it must be stated that there are companies in the United States operated on the basis that a worker's right to work is a claim on the industrial return that has preference over interest on capital. There are certainly companies motivated by the idea that when employees invest their lives in a business they are entitled to as much security as investors who place savings in the business. Pioneering concerns have been pointed to with pride for many years. The Dennison Mfg. Co., Leeds & Northrup, the Procter & Gamble

Co., the General Electric Co., and others have all engaged in formulating plans recognizing the rights of the employee to economic security.

There are other companies that have achieved similar policies, but they represent a small percentage of the total number of American plants. Regardless of one's feelings toward unemployment insurance, it is significant that only approximately 35 companies in the United States have voluntarily instituted their own systems of reserves against unemployment. And of this group, 14 concerns are located in Rochester, where the Rochester Unemployment Benefit Plan is apparently to become effective in 1933. Only a very few additional unemployment insurance plans have been developed by cooperative effort of unions and manufacturers.

Few Textile Examples

The textile industries can boast of few efforts that signify the assumption by management of employment stabilization responsibilities. The one effort in the textile field that has received most general attention was that made by the Dutchess Bleachery. But, the thousands of textile workers work, in general, without any assurances of employment that have been made voluntarily either by the provision of reserve funds or by intra-company production stabilization programs. To be sure, individual textile companies encounter difficulties in this direction since their market is so highly competitive. On the other hand, the need for employment stabilization in textiles is of particular importance. This results from the degree of geographical specialization and the consequent dependence of whole communities upon textile production. The industrial advantages of the specialized center embody a peculiar responsibility for the textile manufacturer to consider his employment stabilization responsibility.

Judging by the efforts expended by individual concerns in general, one can risk the generalization that the stabilization of employment that can be undertaken by industry is a task that still lies largely ahead. We have come to recognize, however, that unemployment represents a diverse problem requiring

Hollander & Feldman

Dr. Taylor says:

"It is evident that most manufacturers hardly recognize the task of employment stabilization as a function of management . . .

★

"Industrial ownership represents a trust and a heavy obligation to provide employment as well as to produce goods . . .

★

"Any plan developed in the United States must take into account the fact that, at least for a time, contraction must be planned . . .

★

"The only real hope of voluntary results from within industry lies in the possibility of developing an executive state of mind, that will lead to the assumption of social obligations, particularly of the obligation to provide steady employment . . .

attentions of various kinds. The approach to meeting so-called technological unemployment must be different from that utilized in minimizing seasonal unemployment. The irregularity arising from cyclical factors is quite different from the adjustments necessary in progressing against lack of regular employment due to the declining trend of an industry. No longer can unemployment be considered as a single problem; it embodies a host of varied and different problems with personal, political, and economic aspects. Present inquirers are asking whether or not they can be met to any notable extent by individualistic competitive efforts. Those who see little hope from such efforts are advancing plans for America.

Complications in Planning

Advanced planning of public works has, for years, been discussed as a means of meeting cyclical instability. But construction of public works has not yet been adapted to stabilization of employment. Some commercial concerns have taken on side lines in order to level their production curve. In some instances this has led to adverse results in the industry manufacturing the side line as its main product. Some companies have apparently secured results in meeting instability by forecasting of future trends. The planners insist that too little has been accomplished by present methods. They state that if the problem of instability of employment is complex and confusing, almost every instance of the existence of the problem is typified by a surprising indifference of management. It is stated that the employer confuses excuses with causes and has taken few constructive steps toward insurance against both "dole" and government interference in business.

And so, the planners are talking of planning as a means of stabilizing industry and unemployment. Planning implies coercion. It means the placing of restrictions upon the activities of the competitive system. The most enthusiastic planners might well bear in mind that the much publicized Five Year Plan, which is frequently the model, is operating in a country that is expanding its capacities and

where the freedom of consumer choice is definitely limited. Any plan developed for the United States must take into account the fact that, at least for a time, contraction must be planned. Also that the freedom of consumer's choice may lead to complications in planning. Planning of industry would be a difficult task in the United States, where the consumer's privilege of choice would necessitate the planning of the production of goods of confusing specifications. For instance, it would be necessary to plan not only for the production of a certain number of pairs of women's hosiery, but also to determine the output of size 10½, 5-thread, 45-gauge, picot, lace welt, French heel stockings, as well as hosiery of innumerable other specifications. It is quite possible that successful planning may be accomplished only by means of a general standardization of products. At any event, it does seem that any comprehensive system of industrial planning is many years off for this country.

The aim of the present article has been to emphasize the fact that industrial management has not accepted as its own the task of employment stabilization. This seems true despite certain managerial insistence that the problem of employment stabilization is a task of industry. Such insistence has developed recently as a result of demands for compulsory unemployment insurance. Because of managerial neglect there have been and there will be developed, many plans and legislative enactments designed to make industry meet its social obligation. There seems to be, however, little likelihood that such plans will quickly be made effective. And, meanwhile employment retains its instability.

The only real hope of voluntary results from within industry lies in the possibility of developing an executive attitude of mind, that will lead to the assumption of social obligations, particularly of the obligation to provide steady employment. The exact methods of stabilization for each industry and business will develop, once the proper attitude of mind has been attained. One must hope for a change of executive attitudes unless one is inclined to believe that there will occur, in the United States, a revolutionary change in the ownership and control of industry. Or unless one sees the possibility of help from legislative acts that can be made effective irrespective of the temper of business executives.

The recognition of social obligations is clearly an attribute of the professions. And yet the existing professions have developed from humble beginnings. It is a far cry from the present medical profession to the earlier witch-doctor, and even now one may meet a medical man who learned his trade by being apprenticed to a general practitioner. Trial by jousting was the earlier expression of the law-maker. Perhaps business, on its road to professional status, has barely developed beyond the pow-wow stage; perhaps it is gradually developing to professional status. The pioneer companies that have assumed social obligations are possibly the leaders in this evolution.

It provides cold comfort to point to relief from employment instability from the development of the professional attitude in business. However, such slowly secured comfort appears to be one way in which the United States will meet its important industrial problem. This "way out" will be prodded along by compulsory duties imposed by the law-maker. The vigor with which such legislative force is applied will depend upon the rapidity with which the professional idea of business develops.

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Return of Confidence the Prelude to Recovery

(*Continued from page 83*) Using as a base the average percentage that the first five months' disappearance is of the total disappearance for the season, my preliminary estimate of the total disappearance of American cotton for the season ending July 31, 1932, is about 12,700,000 bales. But this would mean a domestic carryover of 10,600,000 bales, against 6,400,000 bales at the end of last season. Furthermore, the replacement margins of cotton manufacturers are at their post-war lows, and domestic consumption has been declining. (Consequently, the above estimate of disappearance may be too large.) Finally, it looks as though the cotton manufacturing industry is on the downgrade of a two-year textile cycle.

Barring an inflationary spurt the price of cotton is likely to remain depressed during early 1932, and, as business recovery is not in sight and an adequate reduction in acreage is doubtful, new lows are still possible.

Silk

The year 1932 begins with a large discrepancy between domestic consumption and the total stocks of raw silk in the United States and Japan. In the latter part of 1931, silk stocks averaged the highest for any fourth quarter, and were increasing, while activity was declining. Raw silk prices were actually weak, and the downward plunge of the yen intensified the decline.

Demand and supply of raw silk are going to be brought into a more normal adjustment only through curtailed production in Japan and well-sustained domestic consumption. The first half of the year is likely to be one of low silk prices, with irregular movements caused by the erratic fluctuations in yen exchange.

Wool

The supply of raw wool is easy and consumption is probably declining. The price declined steadily throughout most of 1931 and reached a new post-war low at the end of the year. Nor does the outlook for 1932 indicate any immediate reversal of the broad down trend in the prices of raw wool and its manufactures.

It is probable, however, that the wool manufacturing industry will complete the downward readjustment of the two-year cycle which culminated in the summer of 1931. Apparently a long period of curtailment is needed, at present demand levels, before the current replacement margins of wool manufacturers become satisfactory enough to encourage expansion of activity on a profitable basis. This is unlikely before the middle of 1932 at the earliest, since a sustained revival in consumer demand is hardly to be expected before then.

The price of raw wool is too high compared with silk and cotton prices or the general commodity price level, and the latter has been steadily falling. Domestic mill consumption has declined since last summer, and the broad trend will probably be downward until the middle of 1932. Exchange fluctuations are likely to exert pressure on foreign markets to sell wool. Raw wool prices will probably decline gradually until an upswing in a new textile cycle begins, and that probably will not be until the second half of 1932.

BRILLIANCE

of Constructive Moves

Contrasts with

DRABNESS

of Profit Picture

AGAINST the drab background of an unprofitable year in textiles, certain cooperative accomplishments of the industry in 1931 stand out in brilliant contrast.

To rate them in order of importance is difficult. But certainly a place in the front rank should be accorded the merchandising aggressiveness reflected by National Cotton Week, in June, by National Wool Week in November, and—in a somewhat different way—by Silk Industry Week, also in November.

Possibly the importance of these events is due largely to the fact that the need for this type of activity is so great. Mere reiteration of the truism that merchandising is the vital factor in industry today is not sufficient. Individual manufacturers must themselves become conscious that this fact applies universally, irrespective of the nature of the product. Participation in industry-wide promotional plans should at least start them thinking in terms of merchandising, and it would not seem to be over-optimistic to believe that the direct results of the campaigns should be supplemented by such indirect good as a "follow through" on the part of individuals.

Incidentally, no record of cooperative merchandising accomplishments in 1931 is complete without a reference to the continuing job which the Durene Association did for its members.

The Night Work Movement

Of quite a different type among 1931 achievements, was the successful conclusion of the movement to eliminate night employment of women and minors in cotton mills. Although this activity had its inception in 1930, it first became generally effective on March 1, 1931.

Enough has been written around such controversial points as the motive for and potential effectiveness of this movement. It will suffice here to point out that, since some eighty-odd per cent of the industry indorsed it, an assumption that such a large majority is wrong, is at least presumptuous.

However, here, too, an indirect benefit must be taken into consideration, just as was true in the case of the cooperative promotional campaigns. If an industry, composed admittedly of individualists, can get together on so controversial a matter as night work—one in which sectional antagonisms have played and still do play a part—it would seem reasonable to believe that the law of the survival of the fittest is not the sole doctrine by which that industry hopes to shape its future.

Unspectacular, but Effective, Activities

The two accomplishments referred to above were the "front page" news of the industry. However, they should not be allowed to overshadow the less spectacular but decidedly effective associational jobs due in practically every branch of the industry.

These include the formative operations of the U. S. Institute for Textile Research; the research plans developed by the Textile Foundation; the work of the Cost Section of the Cotton-Textile Institute; and the efforts toward achieving balanced production exerted by the Silk Association of America, the Associated Knit Underwear Manufacturers of America, the National Association of Hosiery and Underwear Manufacturers, and other organizations.

Quietly but steadily there has been going forward in these branches a determined attempt, through personal cultivation of specialized groups, to inject sanity into the programs of individual mills.

In fact, these activities have a significance out of proportion to their news-value. Cooperative effort has been under fire this year. The failure of the Wool Institute, the absence of profits in the face of good demand and a "statistically sound" position, the little war in the print cloth division last fall—all helped to raise the question "What price cooperation?"

Exponents of coordinated activities are on the defensive. It is not sufficient that they know they are right; they must convince others. They must, for example, answer the objection of the man who complained to us that friends of cooperation were penalized at the expense of those who remained outside.

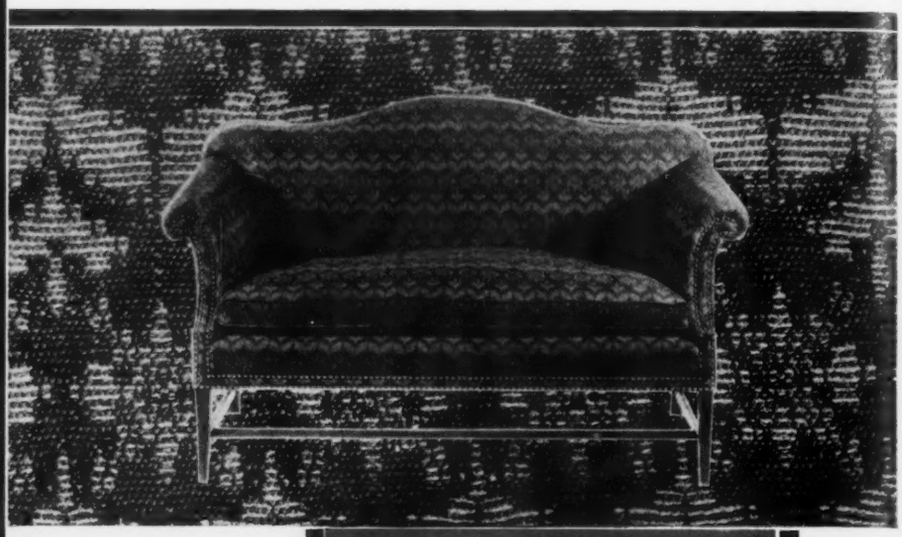
Anyone who has followed the textile developments of the last few years knows the answer. He knows that progress of a few at the expense of the many is ephemeral and that in the long run no firm can succeed in a thoroughly demoralized market.

But that answer must be made convincing. And from a practical standpoint, we believe, it can best be made convincing through the organization of strong specialized groups within each division of the industry. Sanity in wide sheetings manufacture, for example, has not necessarily been achieved because the statistics for the cotton goods industry as a whole are favorable. It can be achieved only if the individuals in that particular group are working together to correct trade abuses, to interpret their own particular statistics intelligently, and to apply that interpretation to the production and sales policies of each mill.

Group action has been a part of the fundamental textile progress of the last year or two. It must be far more of a factor in the next year or two if that fundamental progress is to be translated in terms of financial success.

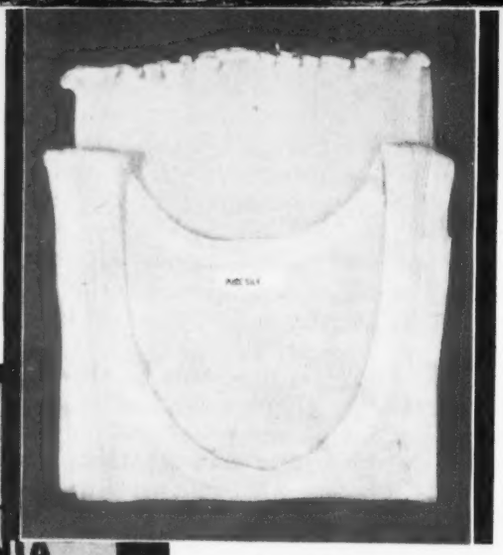
NOVELTIES TO OPEN NEW

Printed cotton pique evening gown in black and off-white—Cotton-Textile Institute.



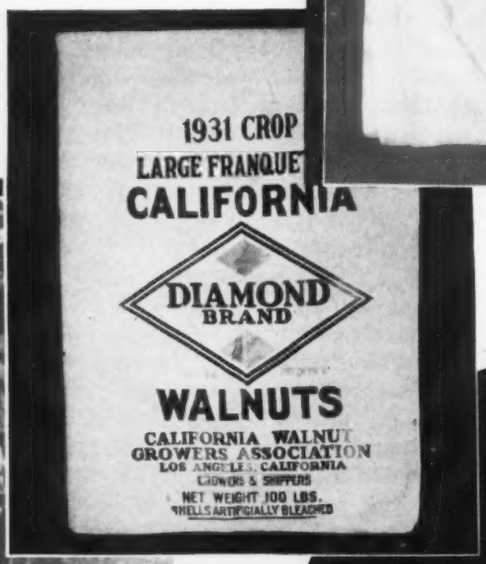
Wool upholstery fabric formerly imported (background) used for love-seat — American Woolen Co.

World's largest shipper of nuts uses cotton bag —Cotton-Textile Institute.



Spun silk knitted undershirt for men's wear—Thompson Bros.

Man's summer suit of seersucker—Cotton-Textile Institute.



Cotton mesh and pigskin gloves — Durene Ass'n.

FIELDS FOR OLD FIBERS

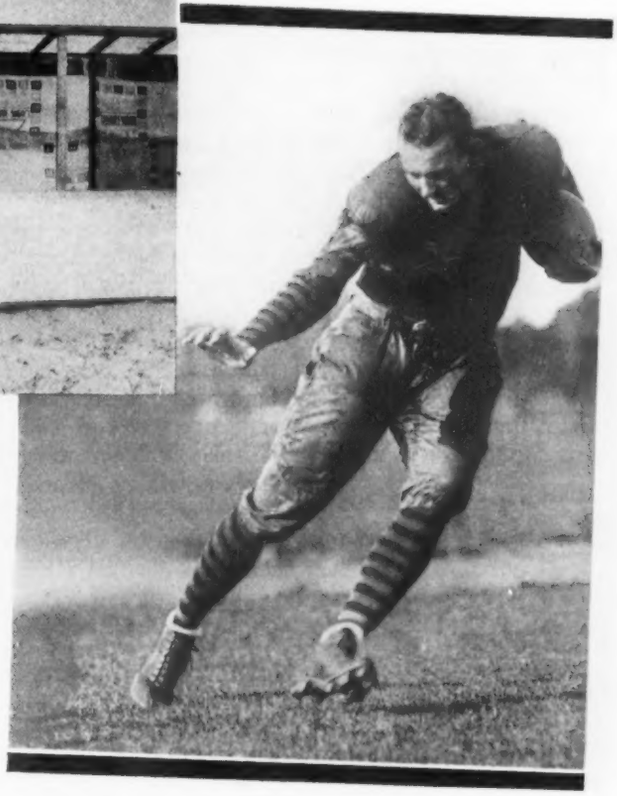
Popular-priced cotton bedspread with attractive dull luster—Durene Association.

Vari-colored spun rayon fabric of woven lace (background) used for dress—DuPont Rayon Co.

Reversible sweater, showing half of each side—New York Knitting Mills.

Chicken coop made of cotton bags coated with tar—Cotton-Textile Institute.

Wool neckties for men's wear—Botany Worsted Mills.



Silk football pants originated at Purdue—Silk Association.

It Can Be—
and Has Been—
DONE

TEXTILE mills can make money . . . A heretical statement, we admit, but one susceptible of proof. More than that, textile mills can make money even if the business world in general seems intent on losing it.

The proof? It has been done. When? In 1931. By whom? By mills large and small, old and new, financially sound and temporarily insolvent, manufacturing staples or turning out branded goods for the ultimate consumer.

Much has been written in recent years about the co-operative job done by the textile industry as a whole. It makes inspiring reading. We believe whole-heartedly in the necessity for, and effectiveness of, that type of cooperation. We shall continue to fight for its continuance.

But the individual company whose sales have fallen steadily, whose prices have been battered by ruthless competitive tactics, whose profits have shrunk and then vanished—is inclined to say "Oh yeah?"

The executives of that company are of course glad to learn that the industry as a whole is being lauded for its constructive activities. But they want still more information. They want to know how they themselves can substitute profits for losses. Their interest is not an academic one; they find that their stockholders have an insatiable curiosity on that point, and that this curiosity cannot be satisfied by charts reflecting a sound statistical position within the industry. Instead, it seems to require charts showing rising earnings for the company concerned.

To many, the job of supplying such charts has seemed a hopeless one during the last year. The odds were too heavy. Either no one seemed to want what they had to sell or, if they did find a market, the transaction netted merely an added loss.

If that were true of all the companies in the industry, there would not seem to be much to do about it. But it was not true.

From time to time during 1931, we encountered textile concerns which were doing a larger volume of business than in 1930, or which had increased their net profits, or which had converted a 1930 loss into a 1931 profit. The stories of a selected number of these companies are told by staff members in the pages which follow.

"Yes, But My Case Is Different"

We can anticipate, and answer, the initial reactions of the average manufacturer:

Q. Oh, sure, I suppose a company which has been making money for fifty years is carried along by its own momentum. But I started in business just before the start of the post-war deflation. How about me?

A. Companies which merely had had an uninterrupted record of earnings over a long period of years were not selected as subjects for these case-studies; they had to have done something worth-while during the present depression.

Q. A new company can be created on a scale, and with a product, compatible with present-day conditions. But my set-up dates back to a different period.

A. One company, at least, whose story is told in this series of articles is ancient. Another one was started in 1930.

Q. A great manufacturing organization, with unlimited resources of both finances and personnel, can effect changes on a grand scale. But what can a company of the modest size of mine do?

A. The case-studies include a concern which is known throughout the world, and one which operates a few dozen looms.

Q. If you are financially sound, you can take chances. But I encountered financial stringency before the present depression; I'm hog-tied.

A. One of the companies selected made a profit in the first four months of its receivership.

Q. A mill making goods which go direct to the ultimate consumer can utilize these new-fangled tools of merchandising, market research, and advertising. But I make staple gray goods; what merchandising can I do?

A. One of the companies was for years a manufacturer of staples. It still has its plants, but their products are being further fabricated and carried to the consumer through its own sales force.

Q. In most of the cases you mention, I can find some one point of similarity with my own conditions, but none has the same combination of circumstances.

A. Anyone who looks to the case-study method for a formula which he can apply to his own business will be disappointed. The experience of no one company can be superimposed upon the affairs of any other one company. But selected parts of the experiences of many companies can be pieced together and made to fit the requirements of another individual organization.

Q. Some of the companies you mention make me laugh. I happen to know they've had their troubles. If they happened to show a little improvement recently, they still can't be classed as successful concerns.

SHAKING OFF THE SHACKLES OF DEPRES

In the pages immediately following, appear a number of articles describing worth-while jobs done by specific textile manufacturing companies during the year of our depression 1931. They do not by any means represent all the successful accomplishments in the industry, in the face of trying conditions; nor do they necessarily represent the most outstanding ones. Instead, the case-subjects were selected with a view to reflecting variety in product, size, and other circumstances. The major inferences to be drawn from this study are summarized herewith.—*Editor*.

A. Of course they can't. But any company which held its own or made a little progress in 1931 is on its way to being a successful concern; at least, the odds are with it. And, besides, we don't think they just "happened" to do better in 1931.

What the Stories Tell

At first thought, an attempt to draw conclusions from a study of these and other textile companies seems a hopeless task.

Each one of us is familiar with the myriad of little jobs which depression has forced us to tackle if we are to even keep in the game. Effecting economies which five years ago would have seemed silly childplay, has become a serious part of every person's program.

In company management, every item of expense has had to be scrutinized. The job of every man and woman on the payroll has come up for study—and often eliminated or consolidated with that of some other individual. Inventories have been examined and controlled. Efficiency has become a necessity rather than a luxury.

No company can be selected as an outstanding example if it merely has done that sort of a job. In fact, any company which did not do it is probably out of the picture today.

However, after every type of organization economy has been effected, after manufacturing methods have been thoroughly overhauled, there still has been no assurance of profit. Textile companies still found themselves turning out products for which there was no profitable outlet clearly in sight.

It is at this point that the line of divergence seems to start between the unsuccessful and successful companies we have studied.

The basic deduction which we draw is that, under 1931 conditions and under the conditions which we may expect for at least a few years to come, intelligent merchandising is the one hope for salvation.

That, of course, has been said before. But it has been voiced as an abstract principle, and rejected as such by many who believed they were removed from the class of merchandisers. In this case, it is said on the basis of actual experience of companies representing most of the major types in the textile industry.

What forms has this intelligent merchandising taken? There is space merely to catalogue a few of them:

Rejection of unprofitable orders.

Advancing of prices where warranted, and in the face of outside sniping.

Maintenance of quality despite price pressure.

Elimination of speculation in raw material.

Development of new products.

Continuing market research on established products; and their elimination or change where found advisable.

Anticipating, rather than following, style changes.

Revising entire manufacturing set-up where market conditions demanded.

Coordinating production and distribution organizations.

Rendering highly flexible the production schedule, for adaptation to day-to-day changes.

Studying consumers' needs and preferences at first hand, and designing products to meet those needs and preferences.

Improvement in packaging.

Utilization of sound advertising plans.

Cooperation with, and education of, wholesale and retail outlets.

Revision of sales arrangements.

Utilization of every appropriate form of promotional activity—even "talkies."

Depression Served as Spur

No one of these companies, so far as we know was so singularly placed as to be immune to depression. In each case, the market, as a whole, for the product had dwindled. In each case, competition had become keener and more ruthless.

However depression served as a spur; it not only forced the companies to eliminate dead wood from their organizations but impelled them to start new growth. In some cases this process was accomplished by pruning; in others by seeding hitherto uncultivated fields.

Not every textile manufacturing company now in business can be made a profitable concern. Some are economic misfits.

But textile mills can make money.

It has been done.

SION WITH INTELLIGENT MERCHANDISING

Merchandising Alertness

Created Record Sales of Chatham Blankets in 1931

EXPERT styling of the product, a continuation of national advertising to the consumer, coupled with carefully planned sales promotions in large department stores, serve as the foundation stones of the merchandising plan employed so successfully in the last two years by Chatham Mfg. Co., Winston-Salem and Elkin, N. C., manufacturers of popular priced blankets. When this article was written, early in December, sales in dollars and cents for 1931 had already reached those of the previous year. This record is all the more impressive when it is considered that sales in 1930 equalled those for 1929, the best previous year in the history of Chatham blankets. Furthermore, blanket prices on the whole were about 25% lower in 1931 than during the previous year, so it follows that a substantially larger quantity of blankets was actually sold.

The dominant idea behind the Chatham Mfg. Co.'s merchandising policies is that the product must be designed to meet the needs and style preferences of the consumer. Beginning with Thurmond Chatham, president and treasurer, every executive and salesman in the Chatham company's organization spent some time behind the counters of retail stores during the year, to acquire first-hand knowledge of the consumer's ideas about blankets. An accurate appraisal of consumer reactions, particularly in the field of style merchandise, is an essential factor in successful merchandising. Increasing emphasis on this point has been the policy of the Chatham organization.

WENT BEHIND RETAIL COUNTER

Following definite study of consumer preferences as to color, size, weight and quality of the product, the company concentrated on the better grades of blankets in 1931 and, as a result, its sales included a greater percentage of all-wool blankets than ever before. Modern housing and more efficient heating in residences have increased the demand for all-wool single blankets, replacing the double blankets formerly sold in large quantities. In keeping with this trend, Chatham featured solid color all-wool blankets in five grades, with suggested retail prices ranging from $5.95 to $15.95, and was a pioneer in the development of a complete line of reversible solid color blankets.

Other all-wool numbers in solid colors which are featured during the year include the "Lamsdown," a lightweight blanket for summer, and the "Waldorf," which was sold in pairs to appeal to those who still favored the double-blanket idea.

Cover of Chatham catalog, one of the company's promotional media

Intelligent styling of the product, as mentioned before, was a primary consideration in the whole scheme of things. Expert designers were employed and many suggested patterns and colors were submitted to more than 1,000 housewives, in addition to a group of style authorities. The overwhelming majority of those questioned in this study favored plain colors. Several new colors were introduced, including mahogany, a shade created for men's rooms.

Attention was directed to the appearance and utility of the package. Chatham blankets are now packed in dust-proof boxes, designed to catch the eye either in the shop window or on the retailer's shelf, but at the same time serving as adequate protection for the merchandise. For the Christmas season, a special gift package, wrapped in double moisture-proof Cellophane, was offered to the trade in three popular numbers.

Aggressive merchandising has been characteristic of the Chatham organization since its own sales department was created in 1923 when the commission house arrangement was discontinued. The year 1931 was no exception for sales efforts were intensified. More money was appropriated for advertising and sales promotion than was spent the previous year, while the personnel of the sales organization was strengthened.

Consumer Advertising

Several effective forms of consumer advertising were utilized to popularize the Chatham brand and assist retail stores in their blanket sales. Carefully prepared full-page advertisements were placed in *Good Housekeeping, Ladies' Home Journal, Woman's Home Companion,* and *Vogue.* Direct mail literature, including broadsides illustrated in four colors, was sent to prospective purchasers through the retail store. Every effort

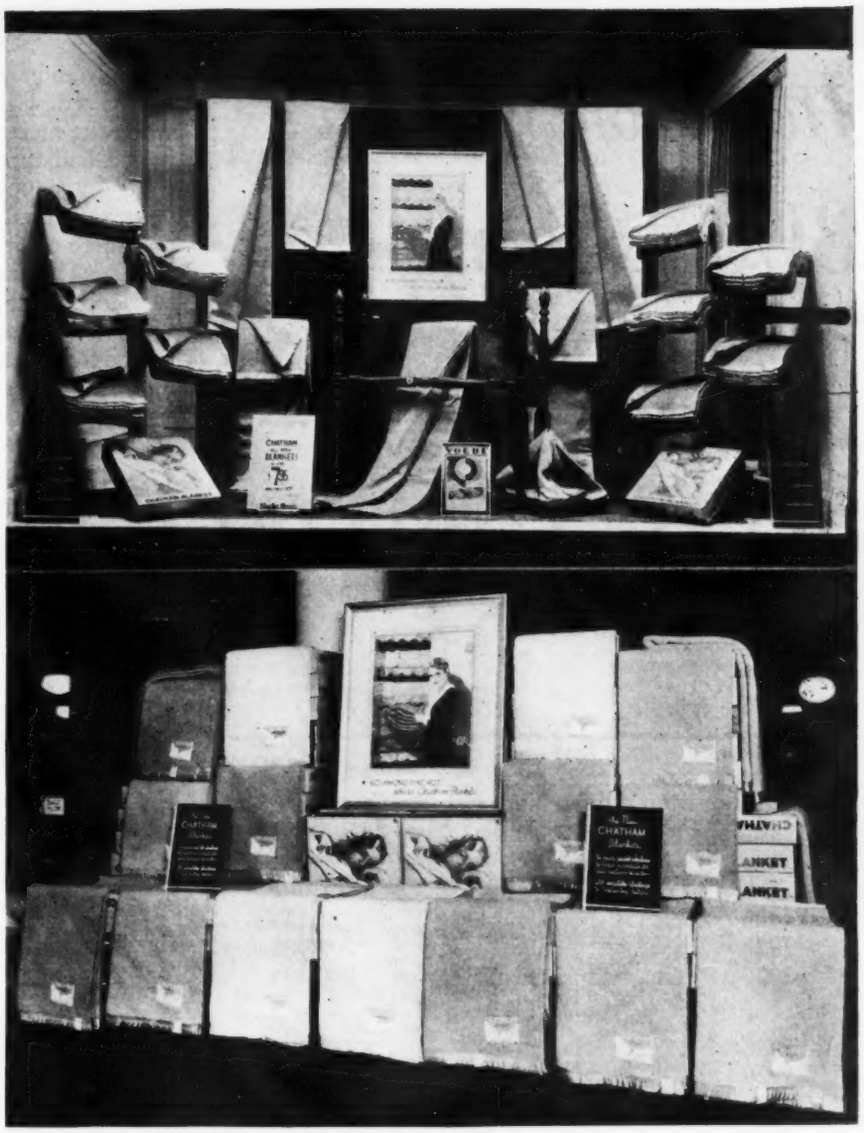
was made to tie-up all local advertising, window and counter displays with the national advertising of the Chatham brand.

The effectiveness of these direct-mail promotions was illustrated by the experience of James McCreery & Co., a leading New York department store. The broadsides were mailed out with sample swatches of the blanket, showing texture and color, and in one week more than 1,000 written orders were received. The four-color broadsides were furnished the retail stores at cost while the mill supplied without charge 2x4 swatches of the blankets. Barker Brothers, a large Los Angeles department store, in a September promotion, employing direct-mail, newspaper advertising three window displays, and telephone calls, sold 18,000 blankets in nine major price groups.

Selling the Retailer

Recognizing the unusual possibilities for increased sales during National Wool Week, Chatham Mfg. Co. made every effort to take advantage of this nation-wide promotion of wool products, and offered four "specials" for the event. These were merchandised to the retail trade by means of a direct-mail folder containing prices and swatches of the special numbers in four distinct price ranges. Thurmond Chatham, who took an active part in the promotion of National Wool Week, stated that substantial results were obtained with the blanket "specials," in spite of the bad weather in most sections of the country during the week.

Other direct-mail literature was sent to the retail trade from time to time. The special Christmas package in Cellophane wrapping was offered to the retailer in this way. Advertisements in leading trade papers were used to tell retail buyers of Chatham's merchandising plan.



Two examples of retail displays of Chatham blankets effected through cooperation of the Chatham Mfg. Co. The upper view is a window display at Hecht Bros. store in Baltimore, showing use of window cards and a bed borrowed from the furniture department. The blankets featured are the 72 x 84, all wool, single, two-tone, reversible style, showing one color on one side and another color on the opposite. The lower view is a counter arrangement in the Fifth Ave. store of James McCreery, New York, showing use of Chatham display material.

An interesting mailing piece recently forwarded to retail stores is a folder presenting "Six Novel Chatham Window Displays," designed by Quinneth Chadbourne Summers, a successful display creator of New York City. The folder contains full directions as to set up, color and materials that should be used in the window displays. The suggestions are entirely practical as all materials recommended are inexpensive and readily available in any city. The folder states that the manufacturer is willing to pay for photographs of any windows featuring Chatham blankets and will award prizes for the best displays.

From the foregoing discussion it is evident that the successful merchandising of Chatham blankets has been due in large measure to whole-hearted cooperation between the manufacturer and the retail stores which are his outlets.

The company has built up a wide blanket distribution in leading stores of the country, thus making its national consumer campaign a most effective tool in selling. The retail merchant has an increased recognition of the Chatham brand with which to work in his local promotions. Here we find one of the explanations for the increased volume of Chatham sales.

TO STUDY CONSUMER PREFERENCES

Hamilton Woolen's

300 Looms Make Money Where 1200 Lost

Hamilton's Sales and Net Profits for Fiscal Years Ended Nov. 30

	Sales	Net Profits
1925	$4,988,172	* 71,733
1926	3,959,043	*502,783
1927	4,016,251	*300,694
New Management		
1928	4,436,987	85,088
1929	5,001,464	190,937
1930	4,266,410	200,238
1931	4,592,881	340,834

*Loss

WHEN the Hamilton Woolen Co., Southbridge, Mass., came out with a financial statement showing a profit of $340,833 for the fiscal year ended Nov. 30, 1931, the volume of talk about this concern, already prodigious considering its size, increased manyfold. "What is the secret of this success?" was asked many times, and answered in as many different ways. The apparent answer is that there is no "secret" of success at Hamilton. Take a compact manufacturing unit; add a small, efficient, smoothly-functioning organization; add good direction; and, more than anything else, add hard work; then any mystery dissolves.

Shift the scene back to a stockholders' meeting early in 1928. The subject under discussion is liquidation. The former treasurer of the company reviews the history of the company, its losses in recent years, and expresses the opinion that to equip the mill to make men's wear successfully would cost anywhere from $300,000 to $500,000, and that to attempt to do so would simply mean the wasting of working capital.

Richard T. Lennihan, but recently elected treasurer when the meeting took place, reports that, in his opinion, it is a bad time to liquidate, that various economies are being introduced, that others will follow, and that plans have been made to scrap a part of the Southbridge plant and to re-equip the balance for the production of salable goods. He expresses confidence that if the program is carried out the stockholders will realize a profit within a reasonable time. Mr. Lennihan is a new-comer to the textile field, but the vote is 14,564 shares to 5,021 against liquidation. A profit of $85,088 was realized that year.

Decreased Size and Increased Earnings

In 1927 Hamilton had 1,200 looms, 34,500 worsted spindles, 17,140 cotton spindles, and lost $300,694. The profit of $340,834 for 1931 was made with 314 looms, 21,200 worsted spindles and 5,500 twisting spindles.

The first step of the new management was to decide what should be made and how much should be made. After checking over sales possibilities it was decided that a more or less stable line of men's wear should account for the large part of production. With this in mind the revamping of plant and equipment was started, with a view to making one compact unit from the four scattered units of the old plant.

The old plant represented the results of typical mushroom expansion. There were buildings added on here and there with ells and passageways abounding. Many of the buildings were in poor condition, the two main groups were 500 yd. apart, and there was a great deal of waste space and unnecessary trucking between departments.

Under new plans production was concentrated in the best group of buildings with the best of the equipment in place. Old machinery was junked or otherwise disposed of, new machinery purchased where needed, old buildings torn down, vacant land and buildings disposed of, and capital stock valuation cut from $2,585,000 to $1,292,000 by substituting no par stock for $100 par.

One of the greatest handicaps of the old plant was that there was no logical route which materials followed from department to department. This was corrected when equipment was concentrated in one unit and materials now flow smoothly from department to department over the shortest possible route. Approximately 200,000 sq.ft. of floor space was saved by this move.

The cotton yarn plant, which certainly did not fit in with the picture of the worsted mill as contemplated, was dismantled. The cut in looms and spindles has already been spoken of and it is obvious that the same policy was pursued in dealing with auxiliary equipment. The only new construction was a small building to house the dyeing.

The Financial Results

A glance at the profit statement at the beginning of this article will show the results which have been achieved at Hamilton. The first dividend, since 1925, of $1 per share was declared June 23, 1930, and since that time regular semi-annual dividends of $1 and then $2 have been paid. On Dec. 21, 1931 an extra dividend

JUNKING BUILDINGS AND MACH

Balance sheet for end of last fiscal year of Hamilton Woolen Co., showing status as of Nov. 30, 1931

HAMILTON WOOLEN COMPANY, INC.

BALANCE SHEET—NOVEMBER 30, 1931

ASSETS

Current Assets:			
Cash on hand and in banks, including certificates of deposit		$1,381,716.00	
Accounts receivable—less reserves		490,642.33	
Inventories at cost or market, whichever lower	$894,084.47		
Less—Reserve	75,000.00	819,084.47	
Accrued interest receivable		1,375.00	$2,692,817.80
Deferred Charges			19,418.78
Certificates of Deposit for Dividend Purposes			77,550.00
Fixed Assets:			
Land, buildings, machinery and equipment, at adjusted book values		$ 989,246.40	
Less—Reserve for depreciation		410,933.14	578,313.26
			$3,368,099.84

LIABILITIES

Current Liabilities:			
Accounts payable		$ 8,851.50	
Accrued pay roll and commissions		61,449.89	
Provision for state and federal taxes		53,593.60	
Provision for loss in finishing unshipped sales		350.00	
Provision for dividend declared December 21, 1931, payable January 15, 1932		184,181.25	$ 308,426.24
Special Reserve for Dividend Purposes			77,550.00
Capital Stock:			
Authorized—45,000 shares of no par value.			
Issued and outstanding—38,775 shares			1,938,750.00
Surplus:			
Balance December 1, 1930		$1,041,821.28	
Add:			
Net profit for the year ending November 30, 1931 as per statement annexed		340,833.57	
		$1,382,654.85	
Deduct:			
Dividend paid July 15, 1931	$ 77,550.00		
Dividend declared December 21, 1931 payable January 15, 1932	184,181.25		
Special reserve for dividend purposes	77,550.00	339,281.25	1,043,373.60
			$3,368,099.84

of $2.75 per share was announced. This extra dividend would seem to indicate that the company believes in keeping money in circulation in these difficult times, in so far as is possible. Out of profits of $340,833 for 1931, dividends of $261,731 were declared and $77,550 set aside as a special reserve for dividends, making a total of $339,281.

The Organization

Naturally, merely putting together an efficient mechanical unit does not automatically bring profits. Hamilton has had to work for profits.

In analyzing many textile mills there are a relatively few points which can be picked out. Some mills have applied inventory control with excellent results; some have gone in for new products; some have developed financial and cost control to a high degree; some have cashed in well on research; some have concentrated on production efficiency; some have merchandised cleverly. No such segregation is possible in analyzing Hamilton. Although the key men of the organization can almost be counted on the fingers of one hand, any critical study of what has been done would have to follow the workings of these active minds through several years.

No one, least of all the Hamilton organization, will claim that this particular mill has done all the jobs enumerated above in a superlative degree. The Hamilton organization, however, seems to have the happy faculty of doing all the jobs well. Incidentally, one glance at the office force will show that this is no "report" mill where activities are so tied up with a system that the system runs the business. Precision of operation may be one of the keynotes, but it is precision gained with a minimum of detail work.

Treasurer Richard T. Lennihan has been variously termed a genius, a man who was lucky to be pushed up by the ability of others, and a manipulator par excellence. The only sensible explanation, however, is that he is an excellent business man. As a business man he is distressed by any attempt to build an "Horatio Alger" figure out of him. He prefers to keep in the background, knowing that intelligent people will credit the rest of the organization with a due share of the glory, and looking upon himself as merely someone hired by the stockholders, through the directors, to produce results. He has applied to the textile industry his business knowledge accumulated in other lines, and perhaps particularly the experience he gained with Dr. M. T. Copeland, professor of marketing, Harvard University Graduate School of Business Administration.

INERY LEADS MILL TOWARD PROFITS

"Sunkist Beauties" of the Fanchon & Marco vaudeville troup, who in the skit called "Undies Through the Ages" showed Van Raalte's Singlette garments to women all over the country.

Depression a Spur to Better Selling,

Is Van Raalte Policy

THE Van Raalte Co., after a generation of distinguished leadership in the knit goods field, suffered financial reverses some years ago and, subsequent to reorganization, was on the way up again when the depression started. Thanks to the aggressive policies initiated by Malcolm G. Van Arsdale, as president, and to the competent organization built up by him, the company not only withstood the backward trend of business, but improved its position so materially that in 1931 it paid a dividend—the first in four years.

This was achieved by strong policies in all divisions, the main points being vigorous original merchandising and distinctive styling. Mr. Van Arsdale surrounded himself with a styling and selling staff which was taught to regard the depression merely as a spur toward keener, more intelligent activity.

During 1931 the company increased its business considerably in all three divisions: hosiery, underwear and fabric gloves. Fabric glove volume was more than doubled in the last three years. The rise in sales was accomplished without deviating from Van Raalte's set policy for offering quality merchandise. While certain adjustments in keeping with general conditions were effected, there was no lowering of standards and no sensational price reductions at the sacrifice of either style or quality.

The company enters 1932 with just as much insistence on correct styling and quality of stock as in the boom days of 1929. This conviction that, depression or no depression, properly priced and properly styled merchandise will sell, has been more than vindicated in the financial return. The company ushered in 1932 with a new move to help dealers adhere to the quality policy; it inaugurated a merchandising plan embodying three features: a promotion service, an exchange privilege and a reconditioning service. This plan enables dealers to keep their lines strictly up-to-date with minimum stocks. The promotion service comprises monthly information on the three foremost hosiery colors.

Anticipating Style Trends

The kernel of this company's success lies in anticipating style trends and in a forceful promotional policy which builds demand. The aim is to create interesting values.

NEW SALES METHODS FOR NEW MERCHAN

Many unusual methods of selling were employed, the most notable perhaps being the use of the theatrical field and the talkies. The styling department created the "Singlette" line of women's underwear, a particularly attractive combination garment which retails at from $2 to $30 per unit, in a wide range of styles and colors.

It was felt that that advertising alone would not do the proper job for selling this line, so in 1930, the company sent Miss Claire Elliott, fashion representative for N. W. Ayer & Co., its advertising counsel, to Hollywood; she sold Fanchon and Marco, vaudeville producers, the idea of establishing a vaudeville skit, entitled "Undies Through the Ages." It should be emphasized that the vaudeville organization took the the proposition solely on its stage merits. A theatrical company was formed and it was brilliantly successful, playing 40 weeks in 35 of the chief American cities on the Radio-Keith Orpheum Circuit. Van Raalte's contribution was to supply "Singlette" garments for the chorus girls. The show was a musical skit, pleasingly built up and and offering a humorous treatment of the evolution of women's underwear.

Sales Tie-up with Promotion

All the Van Raalte outlets in the various cities arranged their underwear displays to tie up with the appearance of the show in their respective towns. Correspondence in the Van Raalte Co. files testifies to the success of the venture from a merchandising point of view. The "Singlette" line of underwear has enjoyed healthy movement at steady prices during the last two years; this line accounts for about 49% of the firm's underwear volume.

Another best-seller has been their line of "Polka" hosiery. The mesh stockings tied up in style with the vogue for lace effects in feminine apparel. These mesh stockings, when first offered, won an indifferent response. Broadway bought some, extremely smart women bought some, but volume was lacking. In this instance, Van Raalte decided to utilize the talkies, and here again the idea was sold solely on its own merits. The Fox interests organized a special "Polka" hosiery talkie, stressing the style element in these newest stockings. They recognized the growing importance of mesh in hosiery and were glad to get the idea.

A film of 186 feet which took six to seven hours to stage was photographed last summer. It was released in September and proved successful, being viewed by between 16 and 20 million persons in movie theaters throughout the country. The name Van Raalte, of course, was not used in either the hosiery or the underwear promotional feats, but the trade names of garments were highlighted. Stores selling "Polka" hosiery made special displays to coincide with the showing of the film in their cities. These retailers reported that mesh hosiery, previously a slow-moving line, reacted immediately to the talkie and that stocks were cleared almost by magic. In many cases the effect was so pronounced that retailers completely exhausted their Van Raalte "Polka" mesh lines in three days after the show opened, and even cleared all their other mesh stockings.

The showing of the hosiery film stressed beauty, style and quality. Another talkie was made featuring the "Singlette" line of women's underwear, with the same style and quality appeal. A woman's voice on the talkie proved unsatisfactory, so a man was engaged to explain the high style points of the merchandise. Van Raalte representatives attribute the sales success of these events to the fact that the emphasis was placed honestly on style appeal in the talkies and on entertainment appeal in the stage show, and without any commercial aspect whatever.

One New York service photographed Follies girls posed in "Singlettes" underwear and sold these photos to lingerie stores in theatrical districts, which materially helped sales. This was a business proposition between the photo service and the stores and did not involve Van Raalte financially. It is important to note that these various promotional activities, despite their spectacular nature and excellent sales results, did not involve the knit goods house beyond strictly commercial outlay. The stage show, for example, brought a sensational increase in underwear volume, and the sole cost was the trip of the stylist to Hollywood, her expenses there and the merchandise contributed.

A decorative pose of Van Raalte products

Viewing the Van Raalte attainment, generally, the following thoughts stand out: The company was determined not to be stampeded by the depression sentiment. It relied on the creation of interesting merchandise in all three lines and on continuous and forceful promotion to get business. It employed well-ordered publicity to build up style recognition of the merchandise and this automatically brought demand. The general propaganda—if such a term might be used—won consumer approval through the theater, the editorial columns of fashion magazines, and the movies. Consumers were sold the idea, first; then they wanted to buy.

DISE PAID FIRST DIVIDEND IN FOUR YEARS

Manville Jenckes Receivers Netted Profit by Attention to Merchandising

Technical development, including both careful is an important part of the

"WE DEFINITELY determined not to take any orders which did not promise a profit. We have accepted orders based on the price of cotton as of the day of the transaction and have immediately covered requirements for the raw material involved. Consequently, there was no guess-work involved; we knew definitely that we would make a profit.

"Speculation in raw material should be divorced from the activities of an operating company. If a management feels that it must speculate, it should form a separate company for that purpose, and keep it quite distinct from its manufacturing finances."

The above statement, made to us by George R. Urquhart, one of the two co-receivers of Manville-Jenckes Co., Pawtucket, R. I., furnishes in our opinion a large part of the reason why the receivers netted an operating profit of $257,485 during the first four months, that is from Feb. 27 to June 27, 1931.

In addition, it supplied a working example of the application, in actual practice, of a theory which has been confined too exclusively to editorials and public addresses: namely, that no matter what steps the textile industry has taken or may take to put its house in order fundamentally, profits will be conspicuously absent so long as individual manufacturers persist in selling their products at or below cost.

Mr. Urquhart, and Zenas W. Bliss, the other co-receiver, are not textile men. They cover up this abysmal ignorance with knowledge of business in general—and with a background of experience in nursing sick industries. Mr. Urquhart was formerly connected with the Bankers Trust Co., New York, and specialized in handling the reorganization of industrial concerns. Gov. Bliss is known for his reorganization work in Rhode Island, particularly the effective job done with the Providence street railway systems.

Anyone who has made even a casual study of the troubles of the textile industry will not be surprised to learn that the receivership found it necessary to direct its major attention to merchandising policies and methods.

Discontinued Finished Goods Business

In addition to the rather novel experiment of demanding a profit for goods sold, the receivers asked the question whether those goods were going on the market in the form which would insure a maximum return to the company. They found in the negative.

Briefly, they decided that the company had to get out of the finished goods business. They found that the selling expense at this end was tremendous. They did not feel, and do not now feel, that the particular type of organization represented by Manville Jenckes is one that can compete with the highly specialized and efficient merchandising methods of the merchant converters. Consequently, they decided to concentrate entirely on the gray goods business. The saving in selling expense thus effected played no small part in the realization of an operating profit. The sales cost for the first four months of the receivership was less than 3%; formerly it was several times that amount. However, definite comparison is difficult, since the latter percentage included expense for selling finished goods, which of course is necessarily higher than gray goods sales costs.

Back of this brief statement is an interesting thought. It is often stated that the textile industry needs integration of steps and processes so that individual companies will be more complete organizations and so that intermediary profits and delays may be eliminated. There is

REJECTION OF ORDERS SHOWING LOSS

process control and research into new products, Manville Jenckes program

much in this theory but, like all theories, it has no blanket application. Conditions peculiar to each company demand individual consideration and action.

We doubt if the Manville Jenckes receivers would state categorically that the company should never re-enter the finished goods business. We do know, however, that they decided such activity unwise under present conditions—and that results to date have proved the soundness of their decision.

There is another major phase of the receivers' activity which is closely linked with the merchandising problem. They do not feel that the company is ordained by destiny to make indefinitely only those products on which it has been operating in the past. The wisdom of this attitude will be appreciated when it is pointed out that a substantial part of the company's product is tire fabric.

Consequently, the technical organization is hard at work devising new lines for potential production in the future. Detailed information on this phase is not yet available for publication, but it is expected that announcement of several new products will soon be made.

The Inevitable Inventory Problem

When "outsiders" become involved in the destinies of a textile company, their noses seem to lead them fairly promptly to the question of inventory. They are often heretical enough to imply that textile manufacturers do not possess an entirely complete appreciation of the importance of the factor of inventory turnover.

The Manville Jenckes case is no exception to this rule. Probably no further words are needed than the following quotation from the receivers' report to the Superior Court, State of Rhode Island, covering the first four months' operations:

"The only raw material on hand on June 27, 1931 (the end of the four months-period) not required to fill orders was 2,000 bales of cotton, and no goods except 9,172 pieces of voiles had been manufactured in excess of accepted orders. Of these 2,000 bales of cotton it was necessary to purchase 1,000 bales of Egyptian to protect a contract which was later advantageously adjusted without using that raw material, but it is gradually being used up without loss."

The first four months of the receivership did more than produce an operating profit. It gave employment to a third more people. On Feb. 27, 1931, the beginning of the receivership, the company had on its payrolls 2,982 employees. On June 27, the receivers had on their payrolls 3,954 employees.

During the same period, unfilled orders for gray goods increased from 7,593,569 yd. to 8,938,880 yd.; unfilled orders for tire fabric increased from 3,913,030 lb. to 4,077,053 lb.

As the result of the four months operations, the company's ability to pay its debts out of current assets was improved by $383,800.

The receivers, in reporting on progress made, evince no desire to imply that everything done by the company in the past was wrong, and that everything being done now by the receivership is right.

Nor do we imply this thought, in presenting this brief summary of the activities of the receivers, in cooperation with Dexter Stevens, president up to last week when he resigned to accept an executive position in Utica, N. Y., and the rest of the established organization.

To us, the main inference to be drawn is that an entirely new and unbiased approach to the problems of a long-established company will quickly point out weaknesses—and methods of correction. Certainly, it could not have been accomplished without the whole-hearted support of the working members of the company's staff. Equally certainly, similar results could be achieved if a similar approach were made to the problems of the great majority of companies in this or any other old industry.

TO MANY, the announcement of a receivership has a funereal significance; it marks the end of the company concerned. In the case of Manville-Jenckes, it presented apparently a new opportunity. Any concern that made a profit during any part of 1931 had to do a real job. To do this, under the added psychological handicap of a receivership, represented that much more of an accomplishment. The combination of an effective working organization built up in past years, plus the injection of new thought by men without inhibitions, was responsible. No matter what happens in the future, the record of progress made during the first four months of the receivership will not be tarnished.

ELIMINATES GUESS-WORK, INSURES PROFIT

Cultivation of Virgin Markets

Safeguarded Callaway Against Depression

SOME five years ago the Callaway Mills, La Grange, Ga., embarked on a program of diversification that projected their activities into new fields. This was in no sense a wild scramble to share in the profitable business of markets already cultivated by other textile manufacturers, but a carefully planned program which, according to Cason J. Callaway, was based on the thory that markets for "any new product are made, not by the article or its novelty alone, but by the extent to which it fits a set of constantly changing social and economic conditions."

The fundamental soundness of this program, which could properly be termed a plan of "selective diversification," has been demonstrated even during the recent period of economic distress. In sharply defined contrast to the complacent attitude of some manufacturing organizations enjoying a fair measure of success during the last period of prosperity, the Callaway industries have been looking for virgin markets and laying foundations which might help to support their manufacturing and merchandising structure during such periods as the last two years. One of the most beneficial features of this diversification program, which became quite evident during the persistence of the general industrial depression, was that the plants of the organization could be operated on much better schedules than otherwise, and labor forces could be shifted from one plant to another so as to prevent the occurrence of actual unemployment within the organization.

The scientific approach to problems in both manufacturing and marketing is the rule of the company. The story of industrial wiping cloths, as illustrated by the development of Oakleaf Mills, a division of Callaway Mills, emphasizes the thoroughness with which a potential market is studied. The manufacture of a woven wiping cloth to replace ordinary waste was suggested by an employee who observed that several workers had suffered severe hand injuries in cleaning moving parts of machinery with waste. This more or less casual suggestion lead to an intensive market study.

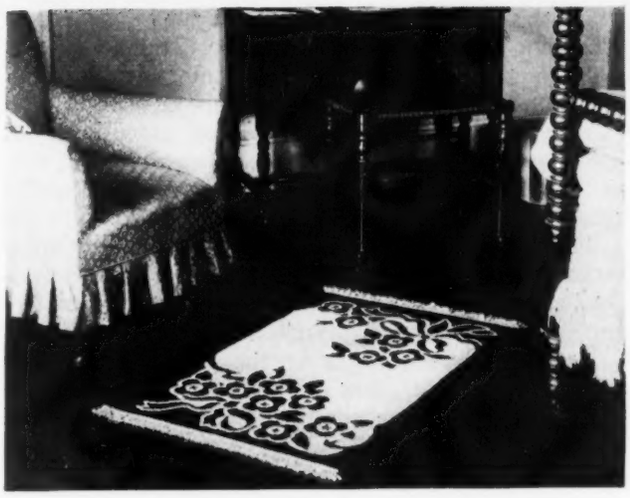
A field survey including calls on several hundred manufacturing plants was made to ascertain if there was a market for wiping cloths. The results of this investigation were so encouraging that the survey was extended over a still wider area. It was found that no direct market existed, because relatively few concerns were large enough to operate their own laundries for washing the cloths. In the meantime experimental work was conducted to find the most satisfactory weaves and to determine the average life of wiping cloths under typical conditions. Although first cost of the product would be samewhat higher than for waste, a wiping cloth could be washed 20 to 40 times, and the ultimate saving was found to range from 20% to 70%. Obviously, the problem was to develop adequate methods for distributing the product; however, this will be discussed later in this article.

Valway Rug Mills, another division of the Callaway organization, which was established in 1925, has been successful largely because of enlightened market analyses and pioneer work in the adaptation of the product to the needs of the consumer. The business depression has not interrupted the progress and expansion of this enterprise, which in 1930 continued to produce and distribute a large proportion of the cotton rugs used in the United States.

Preliminary experiments had revealed that no amount of sales promotion would increase the market for most of the types of cotton rugs then manufactured. Valway Rug Mills established an experimental plant, which cooperated with the research department of the Callaway Mills group. The first step was the development of a vat-dyed rug that would be fast to sunlight, washing and boiling. After months of experimental work this was accomplished, and the rugs have since been sold with an unconditional money-back guarantee, regardless of the

One of the uses for industrial wiping cloths made by Oakleaf Mills

NEW LINES BASED ON MARKET RESEARCH



A Valway rug designed especially for bedroom use

nature of the complaint. Returns have been negligible, but if one is received, immediate replacement is made with a new rug.

Prior to the time when the Valway Rug Mills entered the field, cotton rugs were almost entirely confined to bathrooms. The next objective, therefore, was the refinement and diversification of designs and colors to make cotton rugs adaptable to bedrooms, sun-parlors, nurseries and living rooms. Efforts in this direction resulted in the development of a method of "embossing" which causes the pattern to stand out noticeably above the background of the rug itself. This innovation lends a distinctive feature to the rug and has greatly enlarged its potential uses.

Styling has received prime consideration in the development of Valway chenille and tufted rugs. Interior decorators and style experts are employed to make certain that color combinations and designs are correct and in keeping with current fashion trends. Patterns are selected not only on account of their inherent beauty, but largely in response to actual public demand. Indicating the extent to which these refinements have enlarged the market for Valway rugs is the fact that in 1930 more than half the plant's output was in designs and color combinations created for rooms other than the sun-porch or bath.

Social and economic conditions are changing constantly, and, recognizing the importance of these changes, the Callaway organization keeps diligent check on individual items and styles in order to eliminate the non-profit numbers. In 1929 a concentration program was put into operation in the organization of Truline, Inc. The story of how this company's line of cotton trousers and breeches was reduced from 200 items to eight should interest every manufacturer who is considering the elimination of non-profit items in 1932.

A complete survey of the Truline business, which had developed rapidly since its origin in 1926, revealed the following facts: (1) Thousands of garments were being sold at a loss because minor changes in style had made them obsolete; (2) A complete size range in each of the 200 styles required an excessively large inventory; (3) Even with an average inventory of 200,000 garments it would be practically impossible to fill a fair-sized order complete from stock; to insure prompt service a minimum stock of at least a million garments would be necessary; and (4) much friction with customers and many returned orders were inevitably the result of this unsatisfactory service.

Other facts brought to light in this investigation were as follows: (1) the cotton breeches market was relatively small, and in the entire field there was not being manufactured a line of cotton breeches completely satisfactory to the better quality trade; and (2) Six or seven different fabrics would cover 95% or more of all the probable requirements of men who would purchase cotton breeches.

After these studies were completed, it was decided to eliminate the entire old Truline schedule of cotton trousers, and to concentrate activities on eight numbers of men's breeches. These were designed primarily for hunters, fishermen, guides and working men. This plan of concentration resulted in many economies: Overhead was reduced more than 40%, no stocks of out-of-style garments are now carried, and the average inventory of finished goods has been reduced to about one-tenth of its previous size.

Sales Promotion

The most efficient machinery of distribution possible has been selected for each of the Callaway products. Methods are altered to meet changing conditions in each particular market. For instance, it was decided recently that the increase in the business of Rockweave Mills, manufacturing canvas baskets, trucks and other canvas products, made it advisable to transfer the entire responsibility for sales of this division to Callaway Mills, Inc., located in New York where national distribution could be handled more effectively than from the mill offices at La Grange, Ga.

The development of new agencies of distribution to reach an uncultivated market, as mentioned earlier in this article, was the initial problem of Oakleaf Mills, the division engaged in the production of industrial wiping cloths. A laundry service plan was inaugurated, similar to the familiar towel and barber shop services; and through these channels, plus sales direct to large manufacturers who operate their own laundries, millions of these cloths are made and sold annually throughout the country. The "No-Mar," a lintless wiping towel, was developed especially for the printing trade for cleaning type, rollers and presses.

Valway rugs, made in several different constructions, are sold under these brands: Suntones Embossed, Suntones Jacquard, Suntones Tufted, Pansy and Crestline. The last named is the oval-braided type. These lines are distributed chiefly through the rug and linen departments of large retail stores. Incidentally, four years of careful market analysis has convinced the organization that the United States offers a potential market for at least 15,000,000 cotton rugs annually, provided *all* manufacturers meet high standards of quality in the product.

Large quantities of chenille rugs have been manufactured for hotels. Three standard designs for hotels, the "band-border," the "all-over" effect and the Suntones, are offered in the *(Continued on page 113)*

CARRY CALLAWAY NAME TO CONSUMERS

Depression Helps Goodall in Successful Integration Move

THE so-called depression period has certain advantages. It is all in the way you look at it. The decision of the Goodall Worsted Co., noted as creators of "Palm Beach" fabric for summer suits, to manufacture its own garments, offers an outstanding example of how an adverse business condition may be utilized advantageously. The general policy of textile firms during 1931 was one of acute conservatism and of avoiding new paths. For the most part, the industry held doggedly to established methods and routine procedure. Despite this sentiment, however, the Goodall company took a vital step toward integration of industry, and the results to date have well justified the move.

In Busines 50 Years

This firm, founded 50 years ago, had long been a leading house in the worsted, mohair and linings field, and 20 years ago it began production of summer fabrics, building up a national name for "Palm Beach" cloth. Shortly before the depression started they were enjoying an enviable fabric business, selling to 31 garment manufacturers who offered "Palm Beach" suits as part of their general line of men's ready-to-wear.

The situation was not altogether satisfactory from the point of view of the Goodall company, however; various obstacles developed which grew more pronounced as time passed.

Certain designs, it was found, did not sell adequately; the distributors looked on them with disfavor, turning instead to particular numbers in tropical worsteds. Then, too, there was a trading-down tendency in the manufacture of "Palm Beach" suits which the fabric house, in its capacity as a weaver only, could not control. Suits were offered in an extremely wide range of quality, prices running from $8.00 to $22.50. The merchandising methods also were unsatisfactory; in the words of one Goodall executive: "Our lines were a football of the trade. They were used mainly as a leader to attract business, and they suffered accordingly."

This drew attention to what was perhaps the most serious problem and the one which finally determined Goodall to go into the garment manufacturing industry: namely, the effect on the retailer.

Retailers were not getting the proper profit out of "Palm Beach" merchandise, as the garment makers' methods were injuring the reputation of the fabric. This reputation was one of Goodall's chief assets, having been built up at huge advertising cost; it was remarked by an executive of the company that Goodall spent $1,200,000 in a single year to advertise its products. William N. Campbell, president of the Goodall company, and an energetic Southerner, decided something had to be done. Manufacturers of garments regarded "Palm Beach" just as an incidental additional to their line; they did not—under the circumstances they could not—concentrate on 'Palm Beach" suits. There was no specialized effort to promote this fabric as a garment.

Mr. Campbell called his executives into conference and they began a study of the situation. It was a difficult issue, as at that time the depression was well under way and conditions were not regarded as propitious to radical change. The situation was reviewed from all angles; Goodall officers made trips to all parts of the

WHAT WAS DONE

In May of this year the Goodall Worsted Co.—after years of thinking and many months of experimenting—decided to form a company to make and distribute all Palm Beach Garments for 1932. Accordingly, the GOODALL COMPANY was organized.

WHY IT WAS DONE

For many years the Goodall Worsted Co. has been promoting the sale of Palm Beach Suits. Yet since their contribution was the cloth alone—they could not be responsible for the finished garments which they sponsored and advertised.

The worthy clothing manufacturers who made and sold Palm Beach garments, had naturally varying standards of make. Hence there was no uniformity in value or price.

Besides, these clothing manufacturers had other meritorious goods to sell—and due to close competitive methods in the industry, could not make as satisfactory a profit on Palm Beach as on other items. Under such conditions, sales and enthusiasm in making sales naturally suffered.

AND THE RETAIL MERCHANT

The retail merchant, always ready to proclaim Palm Beach a great summer fabric, found his efforts in promoting sales of suits hampered by the demoralizing tactics of those who chose to make the proverbial football of a popular item.

Moreover, with so many grades and prices, it was doubly difficult for him to make clear to his customer the superiority of his Palm Beach garments as against the cheaper makes. Hence—hurdles, handicaps, resistance that hindered sales.

WHA
MOV

CLOT

MODE
DEMA

A Goodall company broadside summarizing

YEAR OF SLACK BUSINESS PROVED

country; important retailers were consulted. Finally, in the winter of 1930, the company decided that the policy of making its own garments was not only economically sound but necessary to protection of their reputation. Production began in February, 1931, in a plant they had taken over at Knoxville, Tenn.; this location was chosen as it was a central point in the South which represents the chief market for summerweight suits.

They started selling the finished garments on Sept. 8. The line won wide acceptance, better than had been looked for. They had to increase their original quota, and the plant today operates at capacity with a weekly output of 10,000 suits. This plant has been enlarged several times, but it is not adequate to the growing demand, and now the Goodall company is planning to operate two more units. One plant, at Sanford, Me., is nearly ready.

Executives are enthusiastic over the success of the new policy and they regard the new year with confidence. When it was suggested that the depression conditions might have militated against their success, a spokesman for the company replied:

"Our experience proved the contrary. We could not have made the change in a better year. It was a mighty big proposition, as we were taking the place of 31 manufacturers. We decided that, if we were to do it at all, this was the time. The general slackening of business helped us. It goes without saying we could not step up production quickly. We had to reestablish the 'Palm Beach' name with the retailer, on a strictly style and profit basis. We specialize now on standard tailoring and standard price."

T THE NEW
E MEANS

all the skill of the Goodall Worsted Co.
xperience in making and finishing fabrics
ained the greatest in their field... will be
lothing company.

will, in a sense, be made to order to serve
e clothing plant

woven to one ideal uniform width for cut
ted according to one standard by a mod
will give the cloth a marvelous "touch." It
d or laundered by a new tumbler system
y vestige of shrink.

l be woven with the various types of gar-
you will be able to see for the first time, in
every beautiful pattern, color and design
at the Goodall Mills can devise.

HING PLANT

o of the ordinary type devoted to all types
planned and designed to produce summer
ial has been chosen with this one thought
es noted for their seasoned experience,
ntained to do just this one thing well.

ELS FOR EVERY
ND

ry of the new company is to produce for
ry typical type of Palm Beach gar-
ere is a logical demand...

m Beach models designed essentially for
n, the girdled youth, college models as
student models, sport models, models
ose models for those who make a fetish
ve will be double and single breasteds...
pieces with odd coats, odd trousers...
ll trousers models

CONCENTRATION

Hands trained to do one thing well...Weavers of cloth, tailors of garments devoting every day of the year to producing a great summer garment... Such concentration must result in singular achievement...in supreme money's worth and quality.

A great mill and a scientifically organized clothing plant will bring you Palm Beach garments that fill every demand of summer. Indeed, you can effectively merchandise an entire summer department from this great line, with complete assurance of ample profits, and without the risks of loss so often attendant on warm weather sales.

ADVERTISING

Advertising has made the name and the product known to millions of men. In fact, Palm Beach is the one fabric in the men's wear field, known and demanded throughout the length and breadth of the nation.

A new and powerful type of campaign is now being planned for 1932. It will be sensational in its scope and potent in its volume building results. Its aim is to make Palm Beach Suits (and Palm Beach knickers and extra trousers) a by-word in the home... a buy-word in the retail store.

TO SUM UP

- A great mill and a great clothing plant devoted to a single purpose.
- A greater Palm Beach fabric than ever before.
- A garment superbly built on a platform of concentration.
- Colors, patterns, models that dovetail with the needs of every section of the country.
- One standard of make... one standard of price.
- Service... based on the platform of doing one thing well.
- A far-reaching, powerful program of National Advertising... to build volume demand.
- Assured profits.

GOODALL-COMPANY
SUBSIDIARY OF THE GOODALL WORSTED COMPANY
200 FIFTH AVENUE · NEW YORK CITY

the details of its new set-up on Palm Beach

Typical newspaper cut used in "Palm Beach" advertising

Building of a selling force for the suits was quickly effected; the company selected men who specialized in selling summerweight apparel and each salesman was assigned to territory where he already had contacts.

Various significant developments have followed the inauguration of the new policy. Stimulated by its closer relation to retailers, the Goodall company has perfected many new processes in fabric manufacture which give "Palm Beach" cloth a softer finish, enabling it to tailor and drape more satisfactorily. Two new fabrics which met laboratory tests will be offered in suits shortly.

Goodall executives regard the improved relations with retailers as the biggest asset of the new policy. They now concentrate on promoting and protecting the profit for the retailer, and this is bringing results. Where previously they suffered because of resistance from retailers who had found "Palm Beach" to be unprofitable, today they get full cooperation in distributing the suits. They believe that a goods house can sell suits better than the garment trade since, as one Goodall executive put it, "the fabric is not a unit—the suit is."

And they regard this integration of industry as a significant trend in textiles. "Either the big garment company will buy over the goods house, or the goods house will buy the garment company," is their viewpoint.

One further quotation from a comment by a Goodall executive completes the picture:

"We realized the 'outs' in our old method of selling only the fabrics, and in this move we have eliminated all the 'outs' accumulated through 20 years of 'Palm Beach' fabric distribution. We are concentrating on the quality stores in leading cities, and are rapidly developing a market for our suits, not as an 'extra line' but as an established and recognized staple."

GOOD TIME FOR A MAJOR CHANGE

Elasticity of Mill Schedule

Is Key to Rise in Gotham's Net Profits

WHEN the Gotham Silk Hosiery Co., Inc., reported net profits of $254,482 for the first half-year of 1931 as against $163,941 for the corresponding period in 1930, the hosiery industry was surprised—and not a little envious. The six months in question had been very hectic for hosiery manufacturers; what with dumping and underselling, it was difficult for companies to maintain, let alone increase, their earnings of the year previous. How then, to account for Gotham's remarkable gain during a period of such adverse market conditions?

Solon E. Summerfield, president of the Gotham company, explained their policy in an interview with TEXTILE WORLD. He told a story of careful economy, of regulating expenses to meet income, of constant vigilance in studying market trends and in anticipating the various curves of the depression period. His statement built a convincing and illuminating picture. At the conclusion of the interview, however, he made one comment which reveals perhaps more vividly than anything else he said, the secret of Gotham's success. His comment was:

"We used to follow production month-to-month; then we followed it week-to-week; then day-to-day. Now it is minute-to-minute. We shift our schedules with the wind—I mean this literally. We used to form a schedule, and let it move easily along its way, with no one bothering. Conditions were stable then; we didn't have to bother."

This was the basic idea of Gotham's depression policy; in application, economy was stressed. When weak markets bring a drop in income, the manufacturer must regulate expenses to conform. If the income is $2.00, he can spend $1.90, but when the income is cut to $1.00, expenses must be cut to at least 90c. Gotham started on this basis early in the winter of 1929, and they have held to this principle. The whole organization was studied for possible leaks. If there were 12 persons in a department where nine could do the job, the extra three were eliminated. In normal times, there is always a certain amount of slack which can be tightened up when conditions demand it. The same applied to maintenance and to purchases.

Steps Taken Gradually

These steps toward saving were conducted at intervals, depending upon business developments. After the first retrenchment some time was allowed to elapse, then the company again reviewed its organization and curtailed once more; this practice of checking for possible further economies in operation has been followed throughout the depression period.

Then inventory was tackled. As visualized by Mr. Summerfield, the depression policy divides into three main aspects: first, eliminate neeedless work; second, reduce salaries; third, reduce inventories. The last is considered the least important. Gotham subscribes to the policy that if goods are correctly styled, they can safely be held in inventory for a little while, at least. This policy, of course, must be tempered with judgment; it is essential that the manufacturer always keep in mind that a heavy inventory, even of merchandise correctly styled, may become obsolete with a sudden radical change of style.

The Gotham company has kept a close watch on inventory; at present the company is operating on approximately one-sixth of the inventory carried before the depression. The company takes the view that while manufacturers are apt to get careless about stocks in good times where there is no serious danger of declining demand, in conditions like the present inventory must be watched with the greatest care.

The plans involved no material change in merchandising methods or sales promotion. However, there was increased emphasis on selling. The company found that as overhead is reduced and as the price of the product comes down, the effort to sell is greater and selling expenses must increase. This is regarded as one of the important aspects of the policy, particularly stressing that the increased sales emphasis must be applied early enough to offset the downward trend of consumer demand.

Meeting a Declining Market

The weakness of hosiery prices during the depression is proverbial; indeed it is doubtful if any one American staple suffered more acutely. Prices of women's full-fashioned hosiery today are less than half what they were two years ago. At that time $14 to $16 per doz. pairs was a low figure for a manufacturer selling medium-grade stockings; today they can be bought for $5 and $5.50. This has been the bane of the hosiery market and has accounted for the poor financial showing of many important companies.

The Gotham company found the mesh hosiery trend a big help in offsetting the price decline on staples. They

BALANCING EXPENSE WITH INCOME

GOTHAM GOLD STRIPE

GOTHAM NEWS **EXTRA**

GOLD STRIPE PRICES DROP

LOWEST IN GOTHAM HISTORY

Silk Stockings – Chiffon, Sheer, Service – All Reduced

Some Styles That Were $1.95 *NOW* $1.35

$1.50 GOLD STRIPE STOCKINGS *Now* $1.00

GOLD STRIPE "Adjustables"-
They Fit Every Length of Leg -
at $1.35

Now there is no reason why every woman cannot afford the luxury and beauty of GOLD STRIPE Silk Stockings!

*Reg. U. S. Pat. Off.
Pats. No. 1728924 - 1824636

Typical items in Gotham's campaign—center, a broadside for window display at time of price reduction; lower left, window display featuring hosiery for bridge prizes; lower right, window display featuring a new color, "Smoketone"

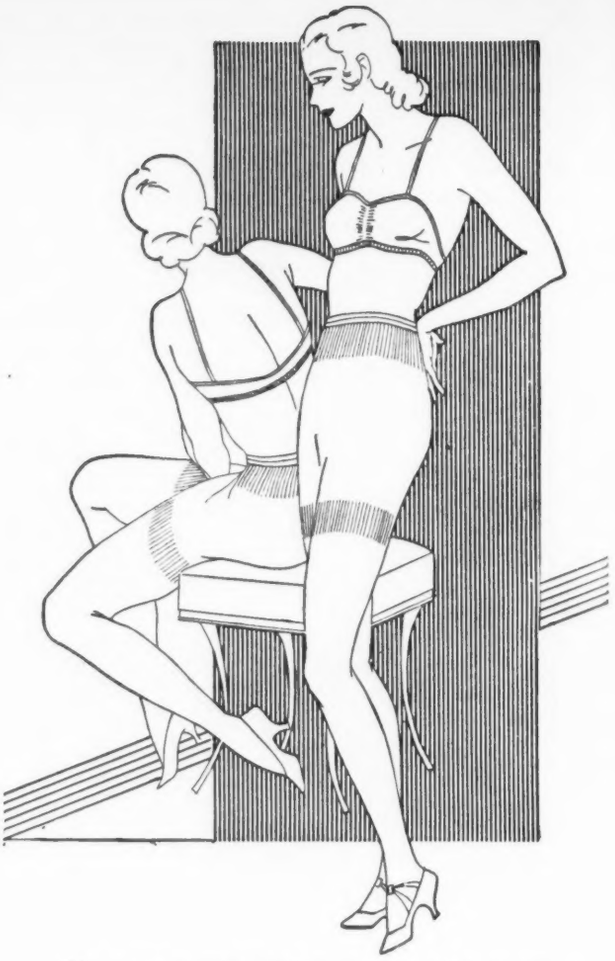
had long been offering a range of mesh hosiery and when these stockings became a vogue, Gotham was ready to meet the demand. Thus their position was strengthened; mesh hosiery sold at satisfactory levels and volume was good during most of 1931. The staples went down in price, but mesh levels held firm and in certain cases they advanced.

In concluding, credit for Gotham's position also should be given to the company's automatic reorder system. This plan, which has been described previously in TEXTILE WORLD, enables the hosiery agent to maintain an up-to-the-minute stock without a heavy inventory. This was a particularly important point during the depression and it made for a stronger contact between the company and its agents. The agents bought no more than immediately needed and they affected quick turnover because the company's method of fill-in kept their stocks in line with style trends.

BRINGS PROFIT RISE AS PRICES FALL

Original Styling, Firm Prices,

Boost Profits of Vassar Underwear Co.



Newspaper advertising cut supplied to its customers by Vassar Swiss Underwear Co.

AGGRESSIVE merchandising of a carefully styled line and a firm policy on prices were two major elements enabling the Vassar Swiss Underwear Co., of Chicago, to increase sales volume and net profits during 1931. This company, which was organized in 1900 by George E. Rutledge, who is still its president, enters 1932 in an improved position. While Vassar makes both hosiery and underwear, interest so far as surmounting the depression is concerned centers chiefly on its underwear lines. At that end, the company did a particularly telling job which was effective in winning response from distributor and consumer alike.

Toward the end of 1930, it introduced Vassarettes, a new line of women's knit underwear which had enough originality in its design to stimulate trade interest despite the backward condition of textiles generally. The first Vassarettes were in the form of vests and panties, Swiss knit, but with a change in pace in the stitch across the bust, again at the waist-line and over the hips, for the vest, and a corresponding change in pace in the stitch throughout the panties.

These garments were made on machinery invented and patented by Mr. Rutledge, who has done much work in that field, all the machines on the regular Vassar Swiss ribbed line of underwear having been designed by him. Development of equipment for the Vassarettes took 18 months and, when the first machine finally was installed the total cost exceeded $80,000. Mr. Rutledge's aim was to perfect a machine that would produce a full-fashioned perfect form-fitting undergarment, particularly suited to the current dress styles.

Trade and consumer response was prompt. Marshall Field & Co. of Chicago and Best & Co. of New York placed orders at sight for all of the production Vassar was able to offer for the first three months. New machines were built as quickly as possible, this work being done in the company's own machine shop located on the plant. As soon as these machines were set up and in operation, production was increased and distribution extended as fast as production could take care of it.

Secret of Success

The secret of the success of the Vassarettes apparently lies in the fact that they meet the needs of modern women and the modern silhouette style of dress. Retailer reaction to the line was enthusiastic; stores reported a healthy and continuous demand from consumers. Throughout the depression year of 1931, telegraph and telephone orders literally poured in to the Vassar plant. The line was taken up eagerly by the company's established outlets and also by a large number of new customers.

The promotional work was along accepted lines. No so-called "stunt" selling was used. In the words of Vassar executives, "it was a selective selling job; the

VASSAR BELIEVES INDUSTRY NEEDS

leading accounts from one end of the country to the other were taken on for distribution of Vassarettes as production was accelerated." The appeal was mainly to style-conscious women and quality was emphasized. Following this cue, the company priced the line carefully, and held to its announced prices.

Vassar executives regard the success of Vassarettes as proving that drastic price reduction is not necessary to effect quick turnover; that the American woman will pay good prices—prices which render legitimate profit to both merchant and manufacturer—for quality garments which are in step with fashion's progress.

The introductory line of Vassarettes was soon followed by newer numbers, improvement being almost continuous. The company tests garments for actual wear and these tests show how the line may be further developed. Criticism and suggestions from merchants and consumers are accepted and frequently have proved helpful.

Among the improved numbers more recently offered was a new uplift knit bandeau to be worn by women who prefer a bust garment instead of a vest. This bandeau, like the other Vassarette garments—the vest and the panties—is designed to emphasize the close-fitting element, with the minimum of wrinkles, pull or strain. Rubber yarn is knitted in at the waist-band and at the bottom of the leg, on all Vassarette panties. In the bandeau, too, this knitted rubber yarn is used, instead of the old elastic. Vassarettes are made from all the yarns now in favor, from high-grade lisles to pure thread silks.

Another underwear style group used by Vassar customers to attract sales for this line

Meeting Competition

The success of these underwear garments encouraged other manufacturers to imitate the line, and the Vassar company found itself facing a trade-down competitive trend. Many lines, made more cheaply to meet cheaper demand, were offered by rival knitters. The attitude of the Vassar company on this issue is interesting. The firm declined to meet the demand with a cheaper Vassar garment, relying on its principle that the quality market was the soundest market. The viewpoint of the company on low-priced competition has been expressed to TEXTILE WORLD as follows:

"Vassar realizes, and hopes that other manufacturers will realize, that it is possible on a market as wide as will be the demand for Vassar type garments, for rational prices to be maintained to show reasonable profits, and that imitations of Vassarettes can be marketed in a constructive instead of a destructive way. There is no occasion, with the demand that exists for this type of garment today, to put cheap plunder upon the market at ridiculous prices ruinous to everybody.

"We appreciate that Vassarettes have established a tremendous sales possibility for new knit garments of this type to every type of trade. We do not expect to keep other manufacturers from going after this type of business to the best of their ability, but we hope that also to the best of their ability they will use the good judgment which business at a profit requires today. Trading up is still what the knit underwear industry needs instead of trading down. Let us all as manufacturers practice what we preach to our retailers."

While originality of line was undoubtedly the secret of the excellent business done by the Vassar Co. during the unfavorable year just closed, the firm's emphasis on other aspects also is significant. For example, they maintain an unusually extensive research department, which covers all the major problems of merchandising, styling and manufacturing. The company relies on these facilities to help steady movement of their lines in the quality market.

Works with Association

Cooperation in the trade-wide activities of the Associated Knit Underwear Manufacturers of America, was another important feature of the Vassar policy. The underwear company followed closely the program of the association as regards stock control and firm prices which, together with its own alert style sense and specialized salesmanship, built up volume at a profitable margin.

This firm, which was a pioneer in developing Swiss ribbed underwear in America, has long believed in quality emphasis. Handicapped by a general trade-down tendency and much price-cutting last year, they offset this by stressing standard, improving their lines, and merchandising vigorously.

TRADING UP, NOT TRADING DOWN

Emphasis on Specialties

Produces Profitable Turnover for Ajax Hosiery Mills

MAINTAINED dividends for 1931 operations among textile mills have unfortunately been too rare. Payment of an extra dividend, therefore, is all the more noteworthy. Such is the record of the Ajax Hosiery Co., Phoenixville, Pa., manufacturer of women's full-fashioned hosiery, which paid not only the regular 7% dividend, but an extra 3% on its preferred stock at the end of the year.

In an effort to learn the conditions and policies which made such an accomplishment possible, a representative of TEXTILE WORLD visited the plant to interview Stanton D. Sanson, president of the company, and M. G. Berg, general manager. An insight into the situation can be gained somewhat from a statement made by Mr. Sanson recently to the employees in their monthly publication: "We have tried as much as possible to ignore the gloom and depression all around use. We have shown our faith and confidence in our business and our future by literally spending a fortune in new attachments and equipment in the hope that we could turn the tide of utter darkness and despair to a point where we could at least see a little ray of sunshine in the distant horizon. We believe we can see that now, but only the future can tell us that definitely. With events of great magnitude accruing daily at home and abroad, what we may look forward to is uncertain and indefinite to say the least, but we feel, however, that the tremendous amount of work and effort that we have put forth in 1931 has put us in a better position than our competitors to weather the storm successfully in 1932. Our plants have run full—our wages, despite reductions, have been maintained on a remarkably high level."

Mr. Sanson stated that several factors undoubtedly entered into the question. In the first place, however, he asserted that at no time did the executives sit back and consider the situation impossible to overcome, so long as right thinking and proper manufacturing and merchandising methods could be fully employed. They maintain the theory that women need and must wear hosiery, so that, if they are able to offer something attractive and outstanding, the women will buy it in preference to other ordinary lines. Therefore, the task was to provide something in hosiery which would offer this compelling feature, as a reasonable price.

That thought led early in 1931 to their new lace-top hosiery. In this article they felt they were offering the consuming public something more beautiful, decidedly attractive and different from competing goods. It was determined that their business should be operated exclusively along these lines, and that they should depart entirely from competitive lines where the keen battle for business makes profits and sales not only an uncertainty, but frequently difficult to attain. By deciding to confine its product to distinctive lines, the company also realized that it was co-operating with retailers and other distributors, and that it in turn would secure the aid of these factors in placing its hosiery before the public. In order to accomplish this policy the company expended $150,000 in re-equipping its plant, and in providing each full-fashioned knitting machine with the required attachments.

Profit, Not Volume, Counts

No plain goods are manufactured by the company at all under its present policy. Where sometimes it is found necessary to supply a customer with staple lines in order to round out his stock of hosiery, arrangements are made to have this hosiery made outside, and frequenty it is turned over at a loss. While the 1931 volume of business done by the company was the largest in its history, in the mind of Mr. Sanson, volume sales are not so important as the profits realized by this turn-over. The experience in handling occasional orders for plain hosiery, as indicated above, has demonstrated this fact.

The company maintains its own direct selling organization with headquarters in New York. The policy has always been to sell only to large users of quality hosiery among the retailers and chain stores. It has never tried to carry water on both shoulders by also catering to the smaller factors. It is felt that this trade cannot be serviced advantageously so fewer and larger customers have been sought.

All the designs for the hosiery are created within the plant. It is the company's policy to develop a specialty hosiery which will appeal to the public at a popular price, at from $1.35 to $1.65 a pair. It requires from six weeks or more to get a new design or pattern under production as it necessitates a complete change of the needles and points of the knitting machines making the new line. Once the change is made and a style is under production, the policy of the company is to proceed with an accumulation of a certain quantity of the new style before it is shown or offered to its customers. This procedure enables it to make prompt shipment on receipt of orders and to maintain a supply on hand so that it thus protects not only itself against any pos-

PRODUCTION-MERCHANDISING COORDINATION

sible competition on this or a similar pattern, but also customers by enabling the latter to take prompt advantage of the market demand. Mr. Sanson personally creates the designs developed in the new plant. A well-equipped machine shop is maintained for the production of cams required in making charges needed for new designs. Mr. Sanson also spends much of his time out in the field in close contact with the trade, studying style trends and consumer wants so that he is in a position to anticipate and develop many styles to meet these new demands. Because of his technical knowledge of the limitations of machine production the company is able to co-ordinate the development of new styles and lines with the actual possibilities offered by their equipment. The close contact between the sales department and the production heads therefore places the firm in a position to move quickly.

Production Costs Carefully Checked

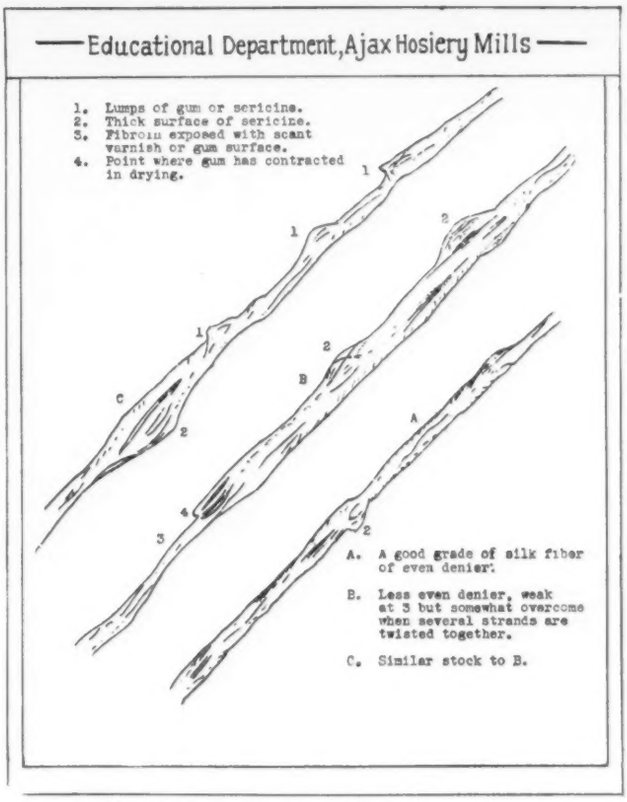
From the above it will be noted that the mill enjoys the advantage of a sound merchandising policy in producing a specialty line of great variety with a minimum of competition to interfere with profit possibilities. An other important factor is a thorough knowledge of manufacturing principles for the efficient operation of the machines. A close check is kept upon all costs by means of a standard cost system. Costs are predetermined, and these include separate estimates of material, direct labor, overhead, etc. Each month the standard or predetermined cost of manufacture is compared with the actual cost, and the losses or gains, termed variations, have been found to be less than one-eighth of one per cent during an entire year. Waste of material is also kept at a minimum by both preventive methods and reclamation.

A complete planning system is installed, whereby it is possible at any time to locate any particular lot of hosiery at any stage of manufacture or finishing in the plant, and the work is planned systematically for each department to facilitate rapid handling.

A unique wage system is employed whereby a fixed wage is set up together with a certain task or quota, not a piecework plan. If the employee surpasses the assigned task, he or she receives a bonus, so that an incentive is constantly offered for good work.

Another important factor in the management of the plant is the close relationship maintained with employees. A director of personnel keeps constantly in touch with each employee. Various activities are encouraged among the employees such as interdepartmental basket ball games, volley ball, baseball, bowling, etc. An outdoor swimming pool has been installed and swimming instruction provided. All athletic activities are under the direction of a physical director.

There are about 800 employees located in the two mills operated by the parent company, Ajax Hosiery Mills. These mills are the Phoenixville (Pa.) Hosiery Mills, and the Pottstown (Pa.) Hosiery Mills. The company first removed from Philadelphia to Phoenixville in May, 1927. The new plant was built there and occupied in May, 1928. The plant at Pottstown was started in July, 1928. Training is offered in a school maintained by the company with State and federal aid under the Smith-Hughes Act. Great care is exercised in the selection of the workers employed. Two teachers are employed in the school training new workers on a complete full-fashioned knitting machine, together with a number of auxiliary machines. A specified course is outlined for each employee no matter what position he or she is to fill.


Educational Department, Ajax Hosiery Mills
1. Lumps of gum or sericine.
2. Thick surface of sericine.
3. Fibroin exposed with scant varnish or gum surface.
4. Point where gum has contracted in drying.
A. A good grade of silk fiber of even denier.
B. Less even denier, weak at 3 but somewhat overcome when several strands are twisted together.
C. Similar stock to B.

Typical material used in Ajax employee education system

Responsibility is placed upon the employees' association for the maintenance of certain details connected with the plant upkeep, so there is of necessity developed a high spirit of loyalty to the company and interest in the work. The company has in this way been remarkably free from any discontent or disaffection on the part of its help, and there is a constant stimulus for improvement which has played an important part.

The employees have been given the privilege of purchasing the preferred stock on an installment plan. A large number of the employees have taken advantage of this opportunity, and in November, 1931, over $250,000 worth of this stock had been thus acquired. This important financial interest in the welfare of the company naturally leads to closer co-operation.

There are, therefore, three outstanding factors which apparently have played an important part in the ability of the company to keep its plants operating at fullest capacity at a profit. These are: First, a good, sound merchandising policy in producing a specialty line which has a decided appeal at a popular price; second, an intelligent manufacturing policy with a close contact and cooperation with the sales end at all times; third, a relationship with the workers whereby a spirit of loyalty and cooperation has been developed.

MAINTAINS REGULAR DIVIDEND PLUS EXTRA 3%

Quality and Firm Price Policy

Increased Blumenthal Profits

"For the quarter ended Sept. 30, 1931, Sidney Blumenthal & Co., Inc., shows net profit of $242,596 after depreciation, which compares with net profit of $142,160 in the third quarter of 1930."—TEXTILE WORLD, Nov. 14, 1931.

BEHIND this terse report in the financial columns lies one of the interesting textile success stories of the year just closed. The story is all the more interesting, all the more significant, in that the success was not undiluted. The Blumenthal company's total net profit for the first nine months of 1931 was $102,956, which was a considerable drop from the net of $130,028 reported for the same period in the year previous. It took a strong merchandising policy and a relentless insistence upon quality in production to turn the tide from loss to profit, and the results testify to what good salesmanship can do despite adverse business conditions.

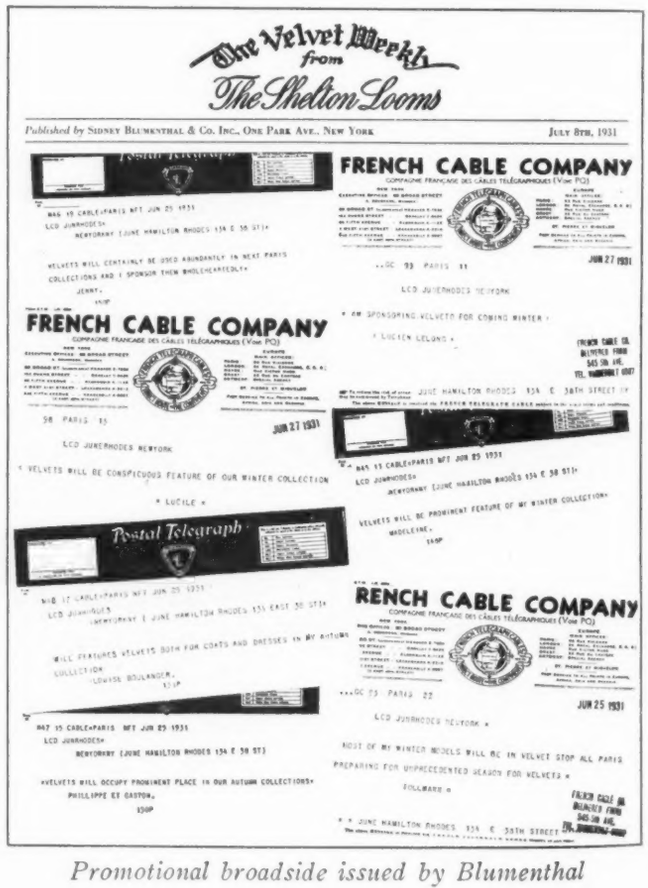
H. H. Schell, vice-president and general manager of the Shelton Looms, which are owned and operated by Sidney Blumenthal & Co., Inc., attributes the remarkable improvement registered by the company in the third quarter of 1931 to care in manufacture, a strong price policy, and a gearing of the organization to meet current conditions. The Blumenthal company believes maintenance of quality in product is more essential than ever during the present situation—Be sure the article is made right. If the manufacture is right, things will be right elsewhere in the business—this aspect is so vital, it can build its own volume. Such, in brief, is the Blumenthal policy.

This company specializes in pile fabrics and has won an enviable reputation in the upholstery and dress velvets field. Transparent velvet was outstandingly important during 1931 and while this line is only a moderate part of the Blumenthal range of merchandise, the record at that end is especially interesting because of the strong price position it held in velvets through the year.

The insistence on quality is based on the premise that consumers are more critical today than ever before and that not even low prices can long hold popular approval, if the merchandise is unsatisfactory. The public is trading-up. Fabrics which years ago were accepted as standard now would not be accepted even as seconds. Transparent velvets are a comparatively new line in domestic manufacture; four or five years ago all the stylish velvets came from Europe. Competition between the home and the imported fabrics was keen for a time, and Blumenthal set out to produce a line of velvets that would equal if not surpass the best being brought from Europe. It was so successful that its line won wide recognition and European competition waned.

Blumenthal places more than average emphasis on quality of the product; the aim is to "give better quality than the customer asks" and the company believes this was the chief point in helping it to improve its position during 1931.

However, price policy is also particularly important and it is an open question whether this was not the major element in the progress. Price was a serious matter in pile fabrics, as elsewhere, during the year just closed. Competition became so acute as to precipitate a condition of "profitless prosperity" for many firms. With the


The Velvet Weekly from The Shelton Looms

Published by SIDNEY BLUMENTHAL & CO. INC., ONE PARK AVE., NEW YORK — JULY 8TH, 1931

FRENCH CABLE COMPANY

JUN 27 1931

FRENCH CABLE COMPANY

JUN 27 1931

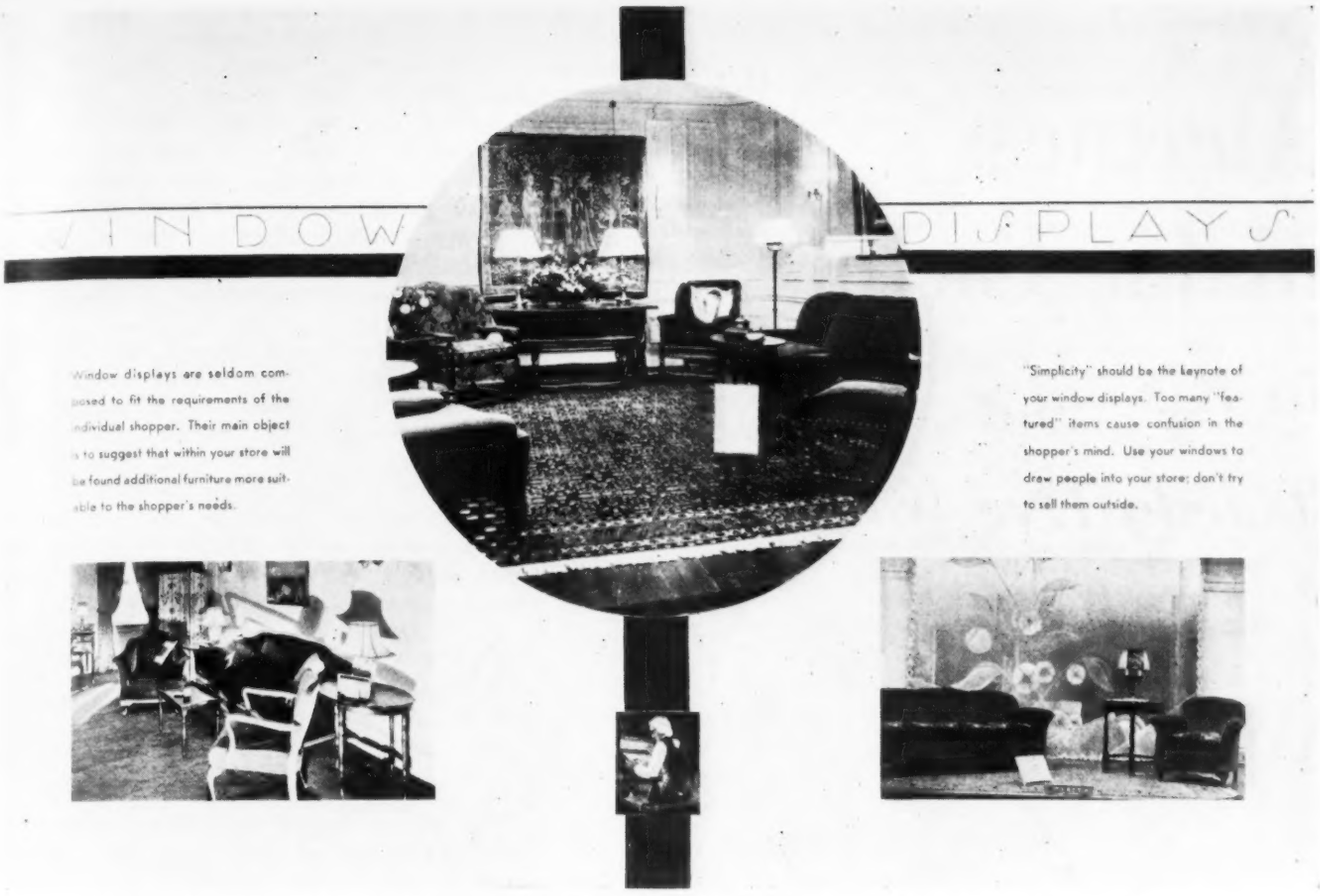
Postal Telegraph

FRENCH CABLE COMPANY

JUN 25 1931

Promotional broadside issued by Blumenthal

PRICE ADVANCE ON QUALITY PRODUCT IN


WINDOW DISPLAYS
Window displays are seldom composed to fit the requirements of the individual shopper. Their main object is to suggest that within your store will be found additional furniture more suitable to the shopper's needs.
"Simplicity" should be the keynote of your window displays. Too many "featured" items cause confusion in the shopper's mind. Use your windows to draw people into your store; don't try to sell them outside.

Impressive two-page spread from "The Weaver" published by the Shelton Looms in the interest of progressive merchandising of furniture

profit margin cut down by underselling, there was a tendency to surrender quality; the trend toward inferior fabrics and poorer construction was accentuated. Opposing this tendency, however, there was the consumer call for better merchandise, especially, velvets.

Velvet demand grew steadily through the first half of the year, and Blumenthal & Co., got a proportionate share of the business. So far as volume was concerned, it was a happy situation, but much competition had brought down price levels to the point where profit was not commensurate. When July brought a further increase in orders, Blumenthal took a step quite unusual for the year 1931—it announced a 17c. increase in the price of every velvet number in the line. The advance was little short of sensational, coming in one of the quietest months of a very backward year, and it had much to do with the firm position the velvet market enjoyed for some months following.

It was a gesture of strength, and it made for confidence all around. It helped Blumenthal, it helped its competitors and perhaps most important of all it helped the buying market by giving an assurance of stability. In reviewing this angle, Mr. Schell suggested that the value of the increase to the garment industry as a whole might be greater than generally estimated, as it made for confidence at a time when confidence was sadly lacking. He said price stability during the latter months of 1931 did much to help the transparent velvet boom, adding that it might even be equal in importance to the fashion factor.

The decision to raise prices was reached only after careful calculation; the issue was whether to continue making quality fabrics and selling at practically unprofitable levels, or to lower the quality. Blumenthal decided against lowering the quality and took the view that such would ruin its future market. It had carefully built a reputation on quality and wanted to continue in that class. The company found a much better response from transparent velvet buyers after the price increase. The garment trade met the advance unhesitatingly and the firm was flooded with orders carrying them through almost to the end of the year. The trade indicated that they wanted high quality and were ready to pay for it. Furthermore, the steadiness assured by the advance helped them to figure their actual cost without fear of an early upset in levels; they promoted their velvet garments more enthusiastically because they were confident; they were dealing with an article that had not shared the general price weakness of textiles during 1931.

So far as the new year is concerned, the Blumenthal company is not building any false hopes. Officers look for moderate movement during the first half, with a perceptible improvement in July which they expect to be followed by a turn for the better.

STILLED CONFIDENCE DURING TRYING YEAR

Alertness Major Factor *in Rise of Toledo Dye Works*

WHEN we wired the Toledo Dye Works, Toledo, Ohio, for permission to write this story, we received the following reply: "Have no objection to article such as you mention. However, don't expect to find any miracle men here. We have only plain horse sense."

It is doubtful that old-fashioned horse sense alone could have been entirely responsible for the phenomenal rise in three years of this finishing plant—a rise against an inherited reputation for poor quality and service, against the disadvantages of a location considerably removed from the important textile centers, and against a period of general business depression. The rise has been substantial, with business and profits increasing steadily in each of the three years.

History of Plant

In order to gain a full appreciation of the odds which have been overcome and the results which have been achieved, it is necessary to look a little into the history of the plant. The Maumee Finishing Co., as the concern was originally called, was established shortly after the close of the World War by the large canvas-goods interests of Toledo, which had thrived during the war period. The plant was not particularly efficient and did not prosper. Its proximity to the motor-car industry made a tie-up with that field natural, but in the automobile trade one must be prepared to meet peak loads in certain seasons and depressing quietness in others. The plant was not properly experienced in, or keyed to, general textile work, with the result that no progress was made in that direction. New interests eventually took hold, and large expenditures were made for new machinery; but even while running at full 24-hour capacity, the plant was still unable to show a profit.

Early in 1929 another rejuvenation of the Maumee Finishing Co. was begun. The first step was the installation of a new general manager—a former instructor in chemistry with only limited experience in finishing, a man without traditions in the business. Processes were then carefully studied, and nothing was taken for granted. Particular attention was paid to efficient routing of goods through the plant. Handling and trucking were reduced to a minimum. Machines which experienced men had believed must inherently be kept separate were put in range. Other machines, formerly in range with the sanction of the finishing industry, were pulled apart in order that efficiency might, where desirable, give place to quality. Where possible, technical processes were improved for quality and speeded up. A large reduction in personnel was made. All key men were developed within the plant itself. Many departments were placed in charge of young men with little or no previous executive experience. In spite of increased wage rates and salaries, reduced costs were effected. This improvement and the better quality of work which also resulted were developed, we are told, from "enthusiasm born of cooperation" among the employees. It was soon possible to solicit and obtain a wider variety of work. Finally the name "Toledo Dye Works" was adopted.

In the last three years the capacity of the plant has been tripled, and this without the installation of new machinery. The force has been kept steadily employed —working nights or holidays whenever the service has demanded.

There is no sales organization worthy of the name. The reason for this is mainly that Toledo executives believe in direct contact, even if it cannot be personal, because finishing, unlike manufacturing, is merely a service business and the ultimate in cooperation with the customers (the converters) is essential. All selling is through direct mail and a series of striking advertisements written by the general manager—advertisements which are characterized by unusual frankness, but which Toledo firmly maintains are based on fact. The general manager has not met personally many of his customers —admittedly poor salesmanship, but concentration on the technical operation of the plant has been justified by the results.

Five Reasons for Success

This historical sketch suggests the reasons for Toledo's success. Basically there appear to be five such reasons, which we shall endeavor to analyze in the following discussion.

First of all we select service—not because it is essentially the most important, but because it would seem the most difficult to attain in view of the location of the plant. Speed through process permits Toledo to compete in time with eastern and southern finishers for New York business. Difficult and exacting finishes are produced within ten days. Orders requiring two weeks are rare. Goods shipped from Toledo by the National Freight Co., a subsidiary of the Pennsylvania Railroad, reach New York on the third morning. Over-night store-door truck delivery is made to such locations as Chicago, Detroit, Cleveland, and Cincinnati.

The speed in process, as we have already suggested, is attained by careful planning and routing and by the concentrated effort of satisfied help, eager to contribute whole-heartedly to the success of the plant. While high

FREEDOM FROM TRADITION MAKES

wages may be partly responsible for this attitude of the personnel, there is also an excellent spirit of camaraderie inspired apparently by loyalty to a common purpose. This good-fellowship, evident to the visitor, is reflected in the social activities of the employees—in their bowling tournaments, their baseball teams, and their frequent get-togethers, which attract practically the entire staff.

The next reason for Toledo's success may be expressed by the principle: "Quality first, efficiency second," in which the staff believes. Not only in its finishes, but even in its packages, samples, labels, and other details, every effort is made to emphasize quality.

The third reason for success, and one which strikes a delicate but seldom responsive chord in the consciences of many textile manufacturers, is a policy of maintaining prices at a profitable level. Toledo accepts no order which is not profitable, with the result that considerable business is turned away. No freight allowances are made; no discounts or other form of inducement given. Prices are based on cost of production, and business is solicited "on the basis of money value to the customer."

The fourth reason for success is largely an outgrowth of the first three. It consists of a high degree of confidence established in the minds of customers through an evident and enthusiastic effort to make deliveries promptly, with emphasis upon quality. There is a certain tone of unusual frankness about the dealings of the concern which enhances such confidence. Furthermore, through its laboratories and technical staff, Toledo cooperates closely with its customers along any lines in which profitable business may be developed. Inspection is particularly stressed. This applies as well to the gray goods received as to the finished material being shipped. Such careful inspection makes the converter realize that the finisher is jealous of his reputation.

We have said the fourth reason for the success of the Toledo Dye Works is the outgrowth of the first three. We believe that all the first four are basically the result of alertness, which is the fifth and last. The present organization is free of tradition; hence it is not hampered in its thinking. It is awake and receptive to new ideas and methods and takes particular interest in the development of new finishes. It declares that even vat dyeing on the heaviest fabrics offers it no terrors. All bleaching, dyeing, and finishing operations are exceedingly simple, if we may believe the sincere assertions of this new and alert organization. Alertness unquestionably has its origin in the energy and enthusiasm of H. M. Paskow, the general manager; and from him it infuses itself throughout the entire organization.

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Cultivation of Virgin Markets Safeguarded Callaway

(Continued from page 101) usual bathroom sizes, 24" x 36" being the most popular. Special designs in hotel name-woven rugs have amounted to substantial volume and this business is being expanded this year.

Specific types of Callaway sales promotion follow:

Rugs: One problem in the promotion of Valway rugs was to pull them out of the corner of the carpet and rug departments of retail stores and to get the product displayed effectively. Direct-mail material was sent to the consumer through the local merchant. This included a series of five booklets, "Studies in Interiors," by Amy L. Rolfe, an authority on interior decorating.

An illustrated pamphlet, entitled "Retail Rug Sales," was prepared for the retail salesman, describing the processes in rug manufacture, and giving valuable hints for increasing small rug sales. Description of the desirable qualities of the cotton fiber and the story back of Valway rugs were included in the booklet. Department stores were furnished free cuts for illustration.

Wiping Cloths: Another example of creating a new market is the recent introduction by Oakleaf Mills of an "advertising cloth" which is a regular industrial wiping cloth on which an advertising message has been printed in black or colored ink. These are used as mailing pieces by firms selling to manufacturing, printing and other industries in which wiping cloths can be used. Rockweave Mills, makers of canvas baskets and trucks for textile mills, hospitals, hotels, laundries and miscellaneous factories, recently used as a monthly direct mail piece over a period of several months six of these cloths in a neat package, a different message being carried on the half-dozen cloths each month.

Kex and No-Mar wiping cloths, as well as the Rockweave line of canvas baskets, trucks and laundry textiles, are advertised in business periodicals reaching important industrial markets. Laundries purchasing wiping towels for local service, or for resale to their customers, are supplied with four-page illustrated mailing pieces, the first page of which is left blank for a letter to the prospect. The laundry service plan has been so successful that Oakleaf Mills now claim that they make "fully 90% of the 'woven to specification' wiping materials used in the United States."

The basic idea behind the Callaway Mills' diversification program and their merchandising policies has been indicated by Cason J. Callaway in the following quotation from *Printer's Ink* (July 3, 1930):

"Competition keyed only to production resolves itself into a battle for present buyers, with price-cutting as the only weapon. But competition based on consumer needs builds new markets almost automatically, puts price in its proper place as one economic factor out of many, and eliminates unfair practices. It makes possible higher wages and thereby opens the door to steadily widening markets. Tremendous losses are now being sustained—in other industries as well as cotton—by the manufacturer of merchandise designed for markets which are disappearing and which may be sold only at ruinous prices. It goes without saying that this process holds up the development of new demand, since prices on new products must be higher in order to make up losses on obsolete goods. If we could eliminate that loss alone, I believe we could end overproduction in the cotton industry within a year."

TOLEDO RECEPTIVE TO NEW IDEAS

Brunswick Shows
Small Plant
Gains
Flexibility
Only by Hard Work

THE statement has been made many times that, with subnormal business, the small plant is relatively better off than the large plant. In fact, some economists have even gone so far as to say that the advantages pertaining to the large plant are slowly disappearing. What, then, is this magic possessed by the small plant? Examination of a typical small worsted weaving mill reveals no magic which clings to a plant because it is small. On the contrary, it reveals that it requires great care, everlasting work and perseverance to cash in on the advantages which seem so apparent to distant economists.

The Brunswick Worsted Mills were organized in October, 1930, and leased space in Pawtucket, R. I., starting Nov. 1. By the end of the month many of the looms were running on orders and by January the plant was operating double shift, which serves to show the speed with which such a plant can swing into operation. To do this it was necessary to purchase and install machinery, get out samples, sell the goods and get into production in a few weeks. Moreover, such speed is essential, for the small unit cannot afford to waste limited capital in delay. Since such a plant is, almost of necessity, a one-man organization, the amount of energy and overtime called for is apparent.

Once on a production basis the Brunswick Worsted Mills possessed two of the oft-mentioned advantages of the small plant, namely, flexibility and an overhead more or less geared to the amount of business coming in. The advantages, however, were not automatically operative and could only be realized by conscious planning. Flexibility shows up in the ability to run a relatively large number of patterns, to change quickly, and to give quick delivery on the required items. To give this flexibility, Henry C. Haskell, who holds all the offices in Brunswick, from president down, states it is necessary that he know approximate quantities of every lot of yarn, what pieces are being woven and when they will run out, what pieces are being finished and when they will be shipped. Records are kept, of course, but only for book-keeping purposes, as any system which would reveal where every pound of yarn or yard of cloth is at a given moment would require an office force so large that the system would soon eat up the mill. Only by keeping track of details personally can the manager prevent a lot of yarn being ready too late, or an unimportant case being shipped ahead of one upon which much future business depends.

This necessity for having everything at the manager's finger-tips, if the full benefits of small scale operation are to be realized, is one of the limiting factors in the size of the really small plant. This limit, in the case of a mill weaving fine fancy worsteds, is about 48 looms. Beyond that point the burden becomes too large for one man and others must be brought in to handle different phases of the business. Once this is done, however, the really small plant begins to run into the decentralization of big business, and loses the chance to make the quick turns which are possible in a plant where one man knows all the details all the time.

Taking Brunswick as an example, one-man control means that this one man can be in the market one day talking with a customer. Suppose the customer states that he could use quite a few pieces of a certain type fabric he has in mind, provided he can get it in a great hurry to catch the season. Knowing what yarns he has and what looms are, or soon will be, available, the mill manager can make definite promises of delivery. Back to the mill he goes and gets out a sample piece in a week to ten days. Such speed is virtually impossible in a large unit where each order must go through a certain routine, get various authorizations, etc. It is not, however, easy to do even in a small plant. Brunswick, for example, has about 600 designs, about 100 mixtures, twists and counts, and seldom runs more than two or three looms on the same pattern.

Low overhead is not an inherent virtue in the small plant; it must be fought for. When Brunswick first started, Mr. Haskell was his own designer and his own secretary. One loom-fixer assisted in running the plant. One day a week was spent with the sales organization in the goods market. As operations expanded last spring and early summer an assistant designer and a secretary were added to the force. This represented the minimum amount of overhead necessary to carry on the business at that time. As two of the largest items of overhead, samples and rent, are fixed, any lower volume of business means that some way must be found to cut other items. The small plant cannot afford to pay out salaries without adequate return—overhead must be pared when business is pared. Thus, when business is slow, tasks are rearranged so that all the permanent staff is busy. To offset the advantages of large scale production the small plant must make every effort to cash in on flexible overhead, for even the irreducible overhead is a serious burden when there is little business.

Age and condition of machinery, together with its

PERSEVERANCE MAKES SMALL UNIT SUCCEED ♦

layout, is one of the most important elements affecting production costs. The large plant can usually afford the best of equipment, and engineers are on hand to see that the layout is proper. The average small plant is less inclined to pay attention to these items and, in many instances, it loses its advantages through lack of study of these factors. Brunswick started with equipment that was practically new and added automatic looms at the earliest opportunity. In addition, in November, 1931, it leased and moved into a modern plant which allowed straight line layout and where a saw-tooth roof assured excellent lighting. Through these measures no advantages were lost, in comparison with the large plant, in plant, equipment and layout.

If the case of the Brunswick Worsted Mills can be taken as typical of the small unit, there are various features that stand out. The first and greatest is that the small plant possesses no advantages that do not have to be fought for, tooth and nail. Another is that careful planning and study of raw materials, production and market trends are just as important as in the large unit —the small operator cannot afford to be caught with unwanted goods thrown back because of defects or late delivery. Still another is that equipment and layout must be scientifically studied, as in the large plant. In brief, intelligent, headache-breeding, hard work. Brunswick showed a fair profit for 1931, its first year of operation, but it wasn't easy.

◆

Careful Planning

Holds Adams-Millis Sales and Earnings

THE steady expansion of operations by the Adams-Millis Corp., High Point, N. C., since its organization through a merger of five knitting plants in 1928, has been a conspicuous development in the hosiery industry. Of even more significance than physical growth, however, is the excellent earnings record made by the company during the last two and one-half years. Perhaps nothing indicates the sound position of Adams-Millis any better than the relative stability of its common stock, as shown by trading on the New York Stock Exchange over a three-year period, the high and low quotations being as follows:

	High	*Low*
1929	35⅞	19
1930	32	21
1931	33½	22⅛

The last sale of the stock in 1931 was at 25½, as against the last 1930 sale of 23.

Conservative management and careful planning in every department of the company have been responsible in large measure for the company's success. Following a policy of gradual expansion into the manufacture of a wider range of hosiery, the company from time to time has added new lines until its salesmen are now in position to offer almost anything from children's socks to fine gauge full-fashioned hosiery. Concentration on popular-price merchandise, the majority of which is sold through large chain store organizations, has enabled Adams-Millis to capitalize on the advantages of large-scale production.

Various economies have been made in the company's manufacturing and selling activities during the general business depression. One of the most important moves was the retirement of the entire second preferred stock issue, thus greatly reducing the preferred dividend requirments. Of this second preferred issue, $270,000 was retired in 1930 and the remaining $192,200 on Feb. 1, 1931. Only 17,500 shares of first preferred stock ($100 par value) 7% cumulative are outstanding, in addition to 156,000 shares of common stock having no par value.

The company follows the general policy of manufacturing only against actual orders. Careful attention to the handling of production orders and stocks of finished goods resulted in substantial decreases in the size of inventories. The company's balance sheet on June 30, 1931, for instance, listed inventories of the corporation and subsidiaries at $575,084, as compared with $710,771 on June 30, 1930. The volume of sales, however, for the first six months of 1931 declined only 4.5% in dollars and cents, as compared with the corresponding period of 1930, and showed a gain of 5.3% over the first six months of 1929. Furthermore, during the first half of 1931, net profits totalled $451,620, as against $413,069 in the first six months of 1930—an increase of 9.3%.

Additional new equipment, including several purchases of full-fashioned knitting machines, was installed during the last two years. A modern building to accommodate an increase in the full-fashioned department has just been completed. It has been the consistent policy of the company to purchase only modern equipment for its plants which have been maintained in excellent physical condition. Recently installed in the full-fashioned department, for instance, is the latest type Parks-Cramer humidifying equipment which makes possible a complete change of air in the room every nine minutes. Many other improvements for increasing efficiency were introduced in 1931.

◆ *MODERN EQUIPMENT AIDS STABILITY*

Greenwich Mills Finds Standardized Quality Still Pays

THE Greenwich Mills, East Greenwich, R. I., started to build a finishing plant and to purchase new equipment in the latter part of 1931, a time when most manufacturers found profits slim or non-existent. When asked how such tangible evidence of progress was possible in the face of prevalent conditions, Granville A. Beals' first answer was:

"Standardization of quality. It sounds trite, but giving the customer cloth as good as the sample, or better, has been an important factor."

Coming from such a source, the statement is much more than an empty phrase. In fact, far from being one of those things which are said because they appear so well in print, Mr. Beals had no intention of being quoted at the time. He was merely giving a critical explanation, and efficient production, an accounting system which gives current details, and sound selling were largely taken for granted.

Everyone likes to talk quality, but many have forgotten this factor in the price scramble and there has always been a gap between talk and performance. It is refreshing to find a concern which, despite the unfortunate price situation in the worsted business, still finds quality an important factor in holding old customers and securing new ones. Although not mentioned by Mr. Beals, there is another angle which is undoubtedly important: Quality cuts down rejections.

With the price situation as it is, there is always the tendency for some mills to "duck" quality. On the other hand, some customers have been so hard pressed that they have been tempted to reject shipments, or make claims, on what has sometimes seemed little more than a "hunch." Even though the legal situation is not satisfactory, and though the woolen and worsted industry seems inclined to adopt the "they have us by the throat" attitude, there is no question that "quality equal or better than sample" is still a strong weapon in fighting rejections.

The new finishing plant at Greenwich is, in fact, but another step in securing control of quality. Even though an outside finishing plant give exceptional service there is not the opportunity for close supervision which exists where these operations are included as an integral part of the mill unit. Naturally, inspection of raw materials, and of the products of various manufacturing departments, is included in the plan to standardize quality. This standardization, however, does not mean concentration on a few patterns. Greenwich brings out over 600 new patterns every six months, so in reality it is a standardization of the quality of fancies.

Accurate Cost Accounting

Any mill which runs a wide variety of patterns finds the derivation of correct costs difficult. Some patterns weave better than others; some require less mending. To meet the situation Greenwich uses a machine unit cost system. Thus, a record is kept of the time required to weave each piece. Direct labor, materials and such items are charged directly against the piece. Then the overhead for a month is divided by the number of loom hours run in the entire weave room, giving the amount of overhead applicable to each hour a loom has run. Since the time taken to weave a piece is known, the cost of each piece is easily ascertained.

Even such a brief outline of the cost method employed shows up certain advantages. In the first place, the cost is actual and not theoretical. It takes care of all such items as smash-ups or delays. In the second place, the effect of short-time on costs is readily determined, since the fewer loom hours run, the greater the overhead burden on each hour of actual production. Still another advantage is that, since the actual cost for each piece is known, the possibility of running on patterns which turn out to be profitless is avoided.

Monthly Financial Statement

Coupled with the cost system is a method of accounting that shows trends and developments as they take place, rather than after the harm has been done. A running inventory is kept and a balance sheet is available each month. It is obvious that an accurate statement of the immediate position of a concern is one of the best weapons of management.

Under such a plan costs have to check up with actuality. Further, the mass of data on past performances serves as an excellent basis for predicting costs on a new line, and for setting selling prices. Even though the predicted cost for a certain pattern is not entirely accurate, the inaccuracy is quickly shown up when production starts, and the necessary steps can be taken.

Unlike many progressive mill men, Mr. Beals does not believe in spending much time in the selling market. He is keenly aware of selling problems and gives much thought to the subject, but he depends on the selling organization to handle its end and believes that he can give better balanced direction by remaining away from the market where rumors, and rumors of rumors, are so widely accepted.

Nothing has been said here about efficient production for the simple reason that, no matter how well other problems are handled, no concern could progress as Greenwich has done without efficient production.

"CLOTH AS GOOD AS SAMPLE, OR BETTER" ♦

Foresight and Quality

Build Profits for Collins & Aikman

Consolidated Income Account (including subsidiaries and after taxes, depreciation, etc.) of Collins & Aikman Corp.

Quarters Ended	Oper. Income	Total Income	Depre. and Fed. Taxes
May 31, 1931	$1,378,710	$1,454,350	$322,195
May 31, 1930	1,119,170	1,155,312	266,231
6 Mos. Ended			
August 29, 1931	1,778,441	1,832,718	511,571
August 30, 1930	1,476,371	1,504,260	436,115

Quarters Ended	Inventory Write-Off	Net Income	C Earned per Shr. $7 Pfd	Com.
May 31, 1931	$150,000	$982,155	$11.53	$1.47
May 31, 1930	130,000	759,081	7.78	1.01
August 29, 1931	142,082	46,905	0.57	d0.17
August 30, 1930	462,747	d283,683	d3.12	d0.75
6 Mos. Ended:				
August 29, 1931	292,082	$1,029,060	12.55	1.30
August 30, 1930	592,747	475,398	5.23	.26

◆

Reduction of 50% in Inventory Carries its Own Moral

In some of the case-studies offered in this issue, illustrating how some textile companies have shaken off the shackles of depression, minute analysis of financial reports tells more vividly than text where emphasis was placed to get the desired result. Collins & Aikman, for example, cut inventories 50%. Low inventory alone may not make for increased profits; economies in administration, aggressive merchandising, firm prices, careful styling of lines and quality emphasis are equally important. But stock reduction is a major part of the job; it is the division in which textile companies are most vulnerable. The alacrity with which Collins & Aikman recognized this vital factor and the vigor with which they tackled it, carry their own moral.

◆

IN the whole range of textile companies which have progressed despite the influences of the depression, there is perhaps no case more striking than that of the Collins & Aikman Corp. and its subsidiaries; this group of companies increased its profits approximately 600% in the nine months ended Nov. 30, 1931, compared with the same period in the year previous. The figures offer glittering testimony to the Collins & Aikman success: the nine months' net totaled $1,203,323 against $217,245 for the three-quarters ending Nov. 30, 1930.

Scarcely less interesting was the statement of earnings for six months ended Aug. 29, 1931, which indicated a net profit of $1,029,060, against $475,398 in the six months ending Aug. 30, 1930.

The latter statement gives a leading cue to the secret of Collins & Aikman's success, in its reference to the low inventory write-off of $292,081.81, against an inventory write-off of $592,747.22 in the equivalent six months of 1930.

However, low inventory is only part of the picture. Collins & Aikman saw the danger of overproduction early in 1930 and tackled that problem aggressively. This company produces an extensive line of upholstery and other pile fabrics, and was enjoying a good movement of its lines at satisfactory profit when the depression started. Executives of the firm are reluctant to discuss or analyze the particular merchandising or producing policies which helped them to offset the backward trend in industry generally. Competitor opinion, however, offers some light on these points. Competitors of Collins & Aikman are generous in their praise of that company's methods, while admitting candidly that Collins & Aikman have led them a keen chase for business.

The view of the upholstery market is that Collins & Aikman owe their excellent position to careful regulation of lines, intelligent control of stocks, a firm price policy, emphasis on quality of product and aggressive merchandising. The company anticipated the prolongation of the depression and geared its organization to meet that condition very early in the day. Automobile upholstery is one of the important lines produced by Collins & Aikman, and they enjoy a particularly good demand in the moderate-price range; their pile fabric upholstery for a well known type of automobile selling in the lower brackets moved steadily and spiritedly throughout 1931. The company maintained quality in this upholstery range, and response from the automobile industry showed the wisdom of that effort.

◆ *INVENTORY CONTROL HELPS BUILD PROFITS*

Strikes Mar Year

of Otherwise Sound Employer-Employee Relationships

EMPLOYER-EMPLOYEE relations on textile wages, during 1931, ranged all the way from the bitterness which marked the Rhode Island strikes of July, to the cooperation which marked the New Bedford reductions in December; from the atrocious wage "chiseling" which went on in certain small units, to the high-minded attitude of concerns which avoided cuts entirely, or made them only when absolutely forced by circumstances. The average level of relations, however, was high. Without entering into any discussion of the theory of wage reductions, it is a fact that the general textile wage level was reduced 10% during the year.

From the news standpoint the two most important developments were the strike at Lawrence, Mass., affecting over 20,000 workers, which lasted about six weeks, and the wage cut decreed by the American Federation of Full-Fashioned Hosiery Workers for the purpose of forcing non-union workers to join. The latter has many peculiar angles which will be outlined later.

Chronologically, not a few manufacturers started the year by reducing wages on Jan. 1, but the first items of large interest were the termination, on Jan. 29, of the four months' strike at Danville, Va., where the main issue was unionization, and the short-lived strike at the Lawrence mills of the American Woolen Co., in February, where certain workers were dissatisfied with the rearrangement of tasks and where the management adopted a conciliatory attitude.

Trouble started brewing among the silk mills of Rhode Island when the General Fabrics Corp., Central Falls, declared a lock-out on May 7 to prevent disorders arising from the adoption of a policy of fewer looms per weaver with the same piece-rates. The brew boiled over on July 9 when an attempt was made to reopen the plant. The National Textile Workers' Union, a radical organization, took advantage of the unrest to seize leadership and there were serious disorders and rioting for some time. About 1,300 workers quit the Royal Weaving Co., Pawtucket, with a demand for restoration of higher wages and disturbances also took place in several smaller units. It was mid-August before a sufficient number of workers were at hand to run the plants again, and the strike definitely broken.

In the meantime about 2,000 silk operatives struck in Paterson, N. J., for the purpose of higher wages. Some violence was in evidence, but individual mills gradually settled by arbitration and most of the difficulty was over in late August after about a month of disturbance.

It was during this period that there was the greatest danger of a general conflagration. With both management and workers on edge because of poor business there was a tendency to magnify misunderstandings and if cool heads had not prevailed, a welding together of isolated cases into widespread strikes was a possibility.

Both the Rhode Island and Paterson strikes were particularly deplorable in that they were not outbursts of spontaneous feeling on the part of the workers, but were largely "engineered" by the communistic National Textile Workers Union for purposes of its own. This union demonstrated by its actions that it had little, if any, interest in raising the living standards of textile workers. It was out to make trouble for the sake of a "cause."

The unfortunate part of the situation lay in the fact that the union found just enough unrest among the workers to get a toe-hold. The misunderstandings between employers and employees were relatively small, but this union was quick to sense the unrest and blow the spark into a flame. Where mutual understanding was in evidence the union never had a chance. It is deplorable that, in these difficult times, two such affairs as the Rhode Island and Paterson strikes should be engineered by an organization that had nothing whatever of a constructive nature to offer the workers.

Union Advocates Reduction

On Sept. 16 came the startling announcement that member mills of the Full-Fashioned Hosiery Manufacturers of America, representing about 35% of the industry, had reduced wages 30 to 45% in accordance with an agreement reached with the American Federation of Full-Fashioned Hosiery Workers. The agreement was to carry for a year and behind it is a story of conflict between union and non-union hosiery mills. The spectacle of a union agreeing to a radical wage cut—even advocating it—is explained by most observers as follows: The cut would enable union mills to cut prices drastically, thus forcing non-union mills to do likewise, with the hoped-for result that wages in non-union mills would be cut to such an extent that the workers would join the union. Another opinion is that the cut is largely a move in the battle between "open" and "closed shop" manufacturers.

The situation at present is extremely clouded and no definite results are looked for until spring. It is stated that union wages now average about 5% below non-union, but it is anyone's guess whether the plan to force workers to join the union will collapse, prove to work out, or whether a strike will be attempted.

20,000 Strike at Lawrence

The most serious disturbance of the year was undoubtedly the strike at Lawrence, Mass., which affected

After the whistle at Lawrence, Mass.

more than 20,000 workers. On Sept. 26, the news leaked out that the most prominent manufacturers of the city had agreed to cut wages 10%, effective Oct. 13. The first reaction of the workers was to deplore the fact that the news came to them through outside agencies rather than directly from each individual mill. At first there was hope that matters would be settled amicably, but this hope was rudely shattered during the week of Oct. 5 when 7,000 workers walked out of the Wood and Ayer mills of the American Woolen Co., and closing of the Prospect, Washington and Shawsheen mills of this company followed. Other concerns which were likewise forced to close were the Pacific Mills, Arlington Mills, Kunhardt Corp., Monomac Spinning, and M. T. Stevens & Co.

Four Factors in Evidence

Throughout the strike there were four factions in evidence. The manufacturers held to their point that the cut was absolutely necessary and that arbitration would lead nowhere against the hard facts. The United Textile Workers of America, A. F. of L. affiliate, coupled with the American Textile Workers Union, deplored the cut and strike, but wanted arbitration. The National Textile Workers Union, the organization which had led the Rhode Island strikes, was frankly out to stir up trouble if the cut was not withdrawn. The Citizen's Committee of Lawrence, as well as State agencies, wanted the two sides to get together and talk things over.

The outstanding factor of the Lawrence strike was that the majority of workers and the majority of manufacturers felt no animosity and whole-heartedly deplored the situation. The tragedy lies in that fact that the history of labor troubles in Lawrence had been such that neither side seemed able to get through to the other and establish mutual confidence. Each side was so sensitive that small slips in diplomacy were magnified into issues.

Considering the number involved, the amount of rioting was small. Apparently wearying of inactivity and hearing no voice of leadership which led anywhere, the workers returned to the mills during the week of Nov. 9 and the strike was over.

Early in November the New Bedford Cotton Manufacturers' Association sent a letter to the executive committee of the New Bedford Textile Council explaining the problems with which the city was faced in competing with other centers, where wages had been reduced, and stating that a 10% cut would be necessary, effective Dec. 7. The New Bedford Textile Council, representing the unions, adopted a conciliatory attitude, stated that the position of the manufacturers was understood, and the cut was approved when put to a vote of the workers.

There were a number of other strikes of a minor character, among which was the strike in the upholstery trade, centered in Philadelphia, which was settled when both sides accepted a 14% cut as determined by arbitration.

General Attitude Enlightened

Any story of the wage situation in the textile industry necessarily emphasizes the disturbances. However, probably the most important long-run factor is that, in general, employer-employee relations were on a sound basis. Both manufacturers and workers were more inclined to look at things in an unselfish light. The tendency, as exhibited in Fall River, Mass., was for each manufacturer to consider his own problem and deal with his own help rather than make any concerted move with other manufacturers. Outside of those few backward manufacturers who took advantage of the situation to bear down on the help, it may be said that the great majority shouldered their responsibility to the workers, and the workers responded by cooperating. Even where the disturbances were greatest there was a feeling in the air that trouble could have been averted by just a little more mutual trust and understanding.

Great Britain's Textile Industry Goes Protectionist

(From TEXTILE WORLD'S *Manchester, Eng., Correspondent)*

IT IS difficult at the present time to forecast the full significance of the new Abnormal Imports Duties in Great Britain which cover a large section of the textile trade. It is generally appreciated that the amount of textiles imported into Britain in the past has been small in comparison with the total output, but the importance to the European textile industries is certainly not to be dismissed lightly. Up to November, 1931, silk and rayon goods of all types had been subject to duties, which were applied for revenue purposes only and, with the exception of rayon yarns, in no instance did these prove to be of a prohibitive nature. Revenue duties on lace and fabric gloves, which were in operation for several years, were repealed by the last Labor Government. Apart from these articles, the British textile industry was entirely free trade, and now the emergency measures of the new National Government have made it into a highly protected industry. All the principal types of textile articles, with the exception of raw materials, now come under a 50% ad valorem duty, the items under the new Abnormal Imports Bill being as follows:

1st Schedule

(k) Manufactures wholly or partly of wool (including mohair, alpaca and cashmere) of the following descriptions:
- Tissues in the piece, including worsteds.
- Plushes and other pile fabrics.
- Flannels and delaines.
- Blankets, travelling rugs, shawls (except knitted shawls), coverlets and wraps.
- Felt, carpets, carpeting and rugs.

(l) Stockings and hose wholly or partly of silk or rayon.

(m) Handkerchiefs, wholly or partly of linen.

(n) Tissues, wholly or partly of linen (except made-up goods for household purposes).

(o) Overcoats and mantles (except proofed coats and mantles and mantles of leather or rubber).

(p) Men's and boys suits, coats, waistcoats and trousers.

(q) Gloves of all descriptions (except rubber gloves) material cut ready for sewing into gloves and glove linings.

2nd Schedule

Woolen and worsted yarns.

3rd Schedule

(h) Manufactures wholly or partly of cotton of the following descriptions:
- Tissues in the piece.
- Flags, handkerchiefs and shawls.
- Household cotton goods (including table linen, bed linen and towels).

(j) Garments, complete or incomplete (other than underwear) and hosiery complete or incomplete (other than underwear but including stockings and hose) for men, women and children and shaped material for making such garments or hosiery.

The extent of British imports of textile manufactures and apparel prior to these duties is given in Table I. The first nine months of the year is chosen as this did not include goods which were dumped in Britain in anticipation of a duty. Were figures for weight available, they would probably show an increase in 1930 over 1929 and little, if any, decrease in 1931.

Stockings and half-hose of all types have steadily increased in importance among British imports in the last two years, and the new duty on silk and rayon hose brings up the total duty to over 80% ad valorem. This is expected virtually to exclude Continental hose and will deal a severe blow to the Chemnitz hosiery trade. Of more consequence to Germany, however, is the new duty on lisle hose. Chiffon lisle hose can be produced exceedingly cheaply in Germany on full-fashioned machines, and it is doubtful if a duty of 50% ad valorem will prove to be anything like prohibitive.

The position as far as cotton piece goods is concerned is exceedingly complicated, and the Lancashire trade has never been eager for a tariff as have most of the other sections of the textile trade. The home market in cotton piece goods is virtually small compared with the total trade, and many people in Lancashire would have been well satisfied with a prohibitive tariff on made-up garments. It is freely argued that many of the imported piece goods sold in the British market are actually made from Lancashire yarns. Moreover, Lancashire manufacturers do not want the world to think that Lancashire costs are so high that they need a tariff for the home trade .

In such lines as corset fabrics and unbrella materials, Lancashire will benefit at the expense of other countries. American manufacturers have supplied a considerable proportion of the fine reed corset cloths used in Britain while France has specialized in box loom styles. Lancashire will have little difficulty in supplying these herself under the new duty, and tradition and style, more than cost, was the reason for the import of these lines.

The woolen and worsted trades of Yorkshire have long been agitating for a tariff, and now the new duties apply to every section of the trade including both yarns and fabrics. The position is very different from that prevailing in the cotton trade and the home market is subject to keener competition and is relatively more important when the whole output is considered. On the yarn side, France and Germany will be the worst hit by the new tariff, and Belgian manufacturers will be very badly placed as a result of the new duties on piece goods.

Table I—British Import Textile Manufactures and Apparel

	January to September in Pounds Sterling		
	1929	1930	1931
Cotton	7,896,984	7,149,151	6,417,175
Woolen and worsted	12,282,055	10,651,927	9,876,909
Silk	10,249,271	8,730,463	6,519,707
Rayon, Linen, Jute, etc.	12,793,335	11,812,001	11,030,796
Apparel	15,045,625	14,802,895	15,477,398
Total	58,267,270	53,146,437	49,321,985

"If I Were a Textile Manufacturer..."

A Letter to the Editor from Jack Card

JUST before closing this issue for the press, the following letter was received, noted and filed for future reference:

Editor TEXTILE WORLD:

My correspondence with you during recent months has gotten me into trouble and I don't know just what to do about it. Maybe you can help me.

As you know, I was writing to you just for the fun of it. (At least, the microscopic checks I've received from you make it seem that way.) You didn't *have* to publish my letters, you know. But you evidently thought they were hot. (Far be it from me to question your editorial judgment.)

However, some of my textile friends have taken these letters seriously. More than that, they have been almost nasty about it.

The tenor of their remarks, after careful fumigation, goes like this: "Well, alright, you ———, what the ——— would you do if you were a textile manufacturer?"

The implied insult is bad enough. I've been called lots of things but never a textile manufacturer.

However, I could stand that if only my New Jersey conscience didn't tell me that it's a fair question.

Now here's where I want your help. If you were I, would you answer them? Or would you just ignore them?

You see, it's like this: I *could* answer them if I wanted to—and if I thought it advisable.

Sure I could.

I'd tell them that, if I were a textile manufacturer, I'd make goods that somebody wanted to buy—and sell them at a profit. To my mind, that's what the whole science of economics is about. As soon as I learned that, I stopped studying.

But, between you and me, I know these textile friends of mine. They wouldn't let it go at that. Do you know what they'd say? Again using Flit, I can anticipate their remarks about as follows: "——— it, that's alright for you; you haven't got anything to lose. But take us: We've got all our capital tied up in huge plants. We've got to pay the interest on our investments. We've got to keep our employees busy. We've got to sell what we make, and in the quantity we make it. We can't be choosy about products and markets and prices. We don't decide our own profits: the market does that for us. Why don't you go back to school and study arithmetic? You must have skipped that and jumped to economics.

That's the sort of answer I'd get. And the trouble is I know how to come back, but I don't dare tell them.

Do you know what's the matter with those guys? Not all of them, you understand, but most of them. They think that just the fact that they've got a certain tonnage of bricks and mortar gives them a divine right to manufacture on a scale with that tonnage, and to expect somebody to buy what they make—and like it.

Don't they know that all we've been doing in the last few years is trying to get our business structure in scale? Don't they know that, as one of my friends put it, we've been shrinking to a size compatible with current demand?

You know how I've shrunk. I told you about my two salary cuts, about my dividend reductions, about my wife's dividend reductions. You know that, whether I liked it or not, I had to get my own picture in scale.

That's what I'd do if I were a textile manufacturer. I'd forget that my directors and stockholders used to like to see pretty pictures of Plants A, B, C, D, E and up to Z. I'd forget the kick I used to get out of quoting paper figures on plant investment, value of inventory, and other extremely invisible assets.

I'd say to my gang: "Now, see here, let's find out the maximum sales we can expect for our present product. Then let's make that quantity and sell it at a profit—even if it can be produced in just one-fourth of Plant A. Then let's see what other things we can make and sell at a profit, with such changes in equipment as may be necessary, and financially possible. Then, if we think we've reached our limit, let's forget Plants L, M, N, O, P and any others that can't produce profits. They were good to us once, but they're no good now if they can't make money. Let's sell 'em, scrap 'em—do anything with them except remember them. Let's forget them and concentrate on that part of our plant and our product that will show on the black side of the ledger. We won't make the profit we did in 1919, but we won't take the loss we did in 1931."

Now what I want to know from you, Mr. Editor, is: Am I right, or am I wrong? And if I'm right, should I tell these fellows about it? They're a good bunch, personally, you know, but they don't always understand—and I'm a peaceable guy.

What do you think I ought to do? JACK CARD.

P. S.—I'm a little strapped. Could you let me have check for this before publication? J. C.

Profitless Selling Must Be Corrected

If Demand in Cottons Is to Be Capitalized

*By George A. Sloan**

President, The Cotton-Textile Institute

THE year 1931 can be recorded as an eventful period in the cotton manufacturing industry. A review of the developments is imposing and lends encouragement to the more hopeful feeling prevalent in the industry at the beginning of the present year. Probably the most significant development was that mill operations from month to month were on a more uniform scale. This is shown in Census Bureau reports of raw cotton consumption. The range between the highest and lowest monthly figures for 1931 was 17% of the average. This was the smallest fluctuation in the last ten years. The same tendency toward a more uniform level of operations is noted in the industry's statistics of fabric production during 1931. The production curve does not show such pronounced peaks of overproduction as in former years.

In a period of business depression, such as we have experienced, one is tempted to depreciate the effect of constructive efforts and to credit to hard, economic necessities any progress toward a better statistical position. There were nevertheless gratifying achievements in preserving a consistent balance of production and demand and in avoiding sporadic overproduction. The demand for cotton goods last year was large enough to require consumption of raw cotton to the extent of 87% of the ten-year average. In meeting this demand, which was exceptionally heavy at times, most mills refrained from excessive production and took that favorable opportunity for reducing inventory. Year-end figures show that sales and shipments in 1931 exceeded production. Seasonal shipments also were in good volume, and coupled with conservative production, caused a reduction in inventory last September to the lowest point in the last four years. On Dec. 31, inventory was 20% less than at the beginning of the year.

That conditions in the cotton manufacturing industry during 1931 compare favorably with other industries is suggested in tabulation below comparing 1931 with 1930:

Carloadings	off	18.5%
Chain stores sales	off	5.3
Department store sales	off	9.8
U. S. exports	off	37.5
U. S. imports	off	32.5
Building contracts	off	36.6
Automobile output	off	29.8
Steel ingot output	off	37.0
Soft coal output	off	17.4
Life insurance sales	off	12.2
Raw cotton consumption	up	1.1
Cotton textile production	up	1.0
Cotton textile sales	up	6.0

The New York Cotton Exchange called attention to the relatively high level of cotton goods production in its Jan. 5, 1932, bulletin in which it said:

"One of the possibly significant phases of the cotton manufacturing situation in the United States is the fact that the domestic cotton spinning industry has been relatively more active than other manufacturing industries of the country on an average in recent months. This is indicated by our index numbers of production of cotton goods and of all manufactures in this country, both series being based on average production in 1922 to 1927 as 100. For November, the index number of production of cotton goods was 83, while that for all manufactures was 72. For November a year ago, the index for cotton goods was 82 and for all manufactures 83. Two years ago, it was 103 for cotton goods and 107 for all manufactures."

Since the sales of cotton goods in 1931 were 6% in excess of production, there is a good deal of comfort to be had in the fair volume of production above referred to, although our industry, in common with others, suffered severely in a financial way.

Cotton Week a Factor

There were powerful influences working in the direction of increased demand for cotton goods, as well as for more orderly production. The history of the industry does not record a more intensive presentation of cotton goods to the public than during National Cotton Week, celebrated last June. The cooperation of retail and wholesale stores throughout the country was noteworthy. Over 14,000 establishments featured cotton goods in newspaper advertising and store displays. Important as this celebration was, National Cotton Week represented only a brief phase in the continuous educational work carried on through the year by the Institute in its development of a more favorable attitude on the part of the public toward cotton. In all of its efforts to stimulate demand for cotton the industry continues to enjoy the active cooperation of the United States Departments of Agriculture and Commerce. It is significant that sales of cotton goods for women's apparel were 30% greater in the first six months of 1931 than in the corresponding period of the previous year.

Prominent among measures looking toward discontinuance of night operation and greater concentration of

*Mr. Sloan is also chairman of the General Arbitration Council of the Textile Industry. Last summer he was appointed by President Hoover to serve on the Gifford Committee for Unemployment Relief. He is a member of the American Trade Association Executives, of the Council on Foreign Relations, and of the Academy of Political Science, and holds a reserve commission as major of infantry in the United States Army.

"Whether we are to benefit from this undeniably persistent demand during the coming year rests largely with ourselves rather than on outside influences. The plain course to pursue is to persevere in the present measures for reducing excess capacity for production, exemplified in the policies involving a shorter work-week and elimination of women and minors from the night shift; to preserve the balance of production and demand, and, most important of all, to respond in a constructive way to the urge of our customers that confidence in values be restored. Price recovery is the magic wand. That will accomplish more than anything else at this time in improving the psychology of the industry and the trade at large."—*George A. Sloan.*

George A. Sloan

output and employment on the day shift, and consequently contributing to greater uniformity of running time, was the recommendation of the Institute that night employment of women and minors be discontinued. This recommendation was widely adopted. At the present time more than 80% of the spindles in cotton mills are pursuing the policy, including 78% of all the spindles in the night running classification. Many mills discontinued their night shifts entirely when they made this recommendation effective and although some were influenced by severe competition to resume night shifts with men workers during the last few months, the resulting reduction in output unquestionably played an important part in the better balance of production and demand.

During the closing weeks of the last year, when demand fell in some of the principal lines of manufacture and a burdensome accumulation of stocks was feared, there arose a most encouraging disposition on the part of customers of mills to counsel moderation in production. These customers took the position that further price reductions were demoralizing to the entire distributing trade and detrimental to public interest.

Profitless Selling in Limelight

Thus the spotlight of attention has again been turned on profitless selling. It is held to be responsible in large measure for the country's curtailed buying power. The Institute has insisted that one step toward correcting unsound merchandising policies is for mills generally to know definitely and in advance the extent to which a prospective sale involves a loss or a profit. This requires careful preparation and study of cost data developed by rational methods. Hence the Institute has particularly stressed the vital importance of such knowledge and persistently urges the more general adoption of adequate cost systems.

In the light of shipments during 1930 and 1931, it would seem that the consumption of cotton textiles, like that of food-stuffs, comes as near to being depression-proof as that of any commodity. Whether we are to benefit from this undeniably persistent demand during the coming year rests largely with ourselves rather than on outside influences. The plain course to pursue is to persevere in the present measures for reducing excessive capacity for production, exemplified in the policies involving a shorter work-week and elimination of women and minors from the night shift; to preserve the balance of production and demand, and, most important of all, to respond in a constructive way to the urge of our customers that confidence in values be restored. Price recovery is the magic wand. That will accomplish more than anything else at this time in improving the psychology of the industry and the trade at large.

Long Drafting

the Nucleus for Future Cotton-Spinning Improvements

By Charles A. Weston

BECAUSE research and experimentation are becoming more and more important in all phases of industry, we are not surprised that some improvement in cotton machinery and processes has recently been made. Generally speaking, these improvements are designed to reduce cost or improve quality. Reduction in cost is effected by the elimination of a machine or process or by an increase in production per machine or process. The improvement in the quality of the product can, in most instances, be traced to the elimination or addition of a machine or attachment, or to a change in the raw stock.

No such developments as those which led to one-process picking, long-draft spinning, or high-speed warping have taken place this year. If radical changes were made by machinery manufacturers in 1931, it was the year for trial; and the trade may hear of them in 1932.

Although no revolutionary ideas were disclosed last year, important changes and improvements were made in the machines introduced in the previous year. These appear to center on the efficiency of machine parts and the adapting of certain new attachments.

The more general adoption of pressed steel as a material in textile-machine building is one of the interesting achievements of the past year. It is being used for covers, roller beams, samsons, ring holders, ring rails, and creels; and one manufacturer has introduced a feeder constructed of steel plates.

There are many who believe that the advantages of single-process picking are rendering it a necessity in order to meet competition. Further improvements have been made in the control of the stock in this process and in the evener motion and the grids. Changes were made in the lap friction, or friction release. A method for more positive control of air within the machine deserves the attention of those who know the importance of regain and allied subjects.

Very few changes have been made in the card in recent years other than those designed to make the setting points less difficult of adjustment and to make the machine adaptable to the processing of waste or mixtures of cotton with other fibers or hairs. Different types of clothing are still being investigated, and metallic clothing appears to be the latest entry into this field.

Changes in the construction of the gears and other moving parts appear to cover what has taken place in the drawing-frame field. An oilless bearing for metallic top rolls was one of the developments of interest. A mechanical stop motion was added to the list of products of one machinery manufacturer. Announcement of the development of a sliver-testing machine for measuring the evenness of slivers created interest among those who desired to trace which process (carding, drawing, or combing) produced the most uneven sliver.

Long drafting was the nucleus about which improvements in the roving processes were made. Changes were effected in the construction of gears and traverse motions and in the methods of driving and lubricating the moving parts.

Attention in the spinning field still centers on long-drafting and large-package frames, and it is interesting to note the system of long drafting which employs two series of rollers and in which a draft of 400 may be attained. For the benefit of those using high spindle speeds a new method of processing spindles so that crookedness is practically impossible has been developed. A new ring is held in the rail by means of a retaining wire instead of by means of the well-known screws, and new finishes for rings have been advertised. The pressed-steel ring rail is clean, light in weight and durable.

A one-process picker that doffs automatically, moves and weighs the laps, adjusts the evener automatically, and sorts out the light and heavy laps is a development which may be looked for in the future.

A spinning attachment has been tried directly in front of the card, but this has not changed the carding action. Therefore, a card producing several ends (12 or more) of light weight, with a drawing attachment, could be a sane prediction.

It has been stated that long-draft drawing frames are being tried abroad. Experiments made for one automobile manufacturer several years ago showed that a 6-grain sliver could be made on the drawing process and that it could be sufficiently condensed to be suitable for direct presentation to the spinning frame. Might we not, then, predict a drawing frame having a double series of rolls, producing raw material for the spinning frame?

Will 1932 bring forth a roving frame without the much-criticized cone-belt drive? Will we see a change in the flyer, or will it be eliminated? Long-drafting, at any rate, should receive considerable attention.

It is quite possible that the most drastic changes will be made on spinning frames. Where drafts of from 300 to 400 are possible, it is not fantastic to look forward to the time when card sliver may be carried directly to the spinning frame.

Future Cotton Looms

Will Be Faster and Quieter

By Thomas Nelson

Director, Textile School
North Carolina State College

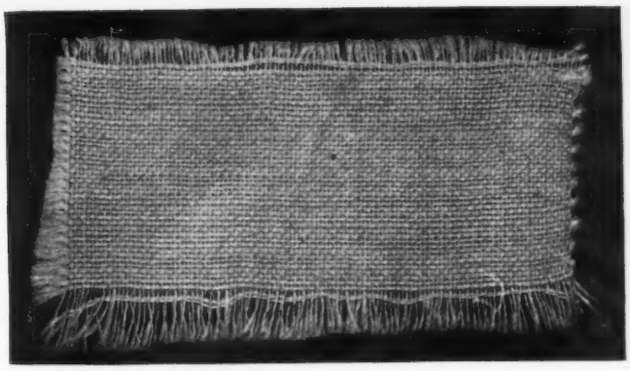
NOTWITHSTANDING that the modern automatic loom is one of the most remarkable machines of the age, the fact remains that, until the last few years, its general construction was not given the careful thought that should have been given to it. A loom would not formerly run with that ease of operation which is noticeable in the latest models.

A new line of looms, for example, has been constructed to meet the following requirements, expressed in the words of the builder: "1. The looms must be built along engineering lines. 2. They must be less expensive. 3. They must run faster and make more perfect goods. 4. They must require less fixing and be easier for both weaver and fixer to handle."

To meet these specifications the various parts of the loom have been simplified, and fewer parts have been used. Many of these parts are now machined, which allows them to be fitted together more accurately without any necessity for filing. This enables them to retain their original alignment. A notable advance is the use of roller bearings, allowing the motions to operate smoothly and easily. They make possible a considerable saving in the consumption of power and, at the same time, permit greater speed of operation. Heavier loom sides are also being made, which is a decided advantage. Many other refinements have been developed.

Whether the fundamental principles of construction of the present loom are correct or not, only the future can determine. A number of attempts have been made to evolve other methods of producing fabrics, such as circular and shuttleless looms. The so-called Jabouley loom developed in England is a circular type. Another circular loom somewhat of the same order was demonstrated in Brooklyn, N. Y., a few years ago, and others have been demonstrated from time to time.

Shuttleless looms have also been invented and introduced. These looms have been demonstrated in foreign countries and also in this country. Recently one of these looms received considerable publicity. The filling was supplied from a cone placed at the side of the loom. A needle or pointer carried the filling half way through the shed and was met at this point by another needle or pointer coming in the shed from the opposite side of loom. The latter pointer carried the filling back through the shed, completing the movement.



Sample of fabric woven on shuttleless loom

This was not a new idea, as the writer saw a similar motion on a loom over 30 years ago in Boston, Mass. The filling was carried through the shed in a manner similar to that just described, but was left double in the shed. A sample of cloth taken from the loom at the time is shown in the accompanying photograph.

Many extravagant claims have been made for looms such as these, but loom builders have regarded these inventions with a degree of skepticism. Judging from the apparently small advance made in the building and adoption of circular and shuttleless looms, it does not seem likely that, for many years at least, either of these methods of weaving will supersede the fundamental principles involved in the construction of looms now in use.

Notwithstanding the extensive improvements which have been made, there still remains that undesirable symbol of questionable mechanical efficiency—the overabundance of noise which the operation of the loom produces. The elimination of this noise is in itself a desideratum. To visualize a weave room without what might be called loom music is almost impossible, so inseparable from the weaving operation has the noise become associated in our minds. Many of the old weavers probably consider it a part of the actual weaving. This may be especially the case with the Lancashire weavers, who weave on the lay, swaying backward and forward to the music of the shuttle as it is driven from one side to the other and singing "Clickety clack, clickety clack; hit me again and I'll hit you back." In the loom of the future this noise will be eliminated.

In the light of present developments I believe we may well look forward to a more scientific picking motion, reducing not only the noise of the present loom but also the power required. Loom sides will be made still heavier and stronger, so as to reduce vibration. Roller and ball bearings will be used at all rotating points. Lock nuts will be provided on all bolts. Tension devices will be used to regulate the let-off of the warp more accurately. Warp indicators will register the tension of the yarn during weaving. Indicators will record the amount of yarn let off the beam during weaving. All parts will be milled to fit accurately. In short, the loom of the future will be practically devoid of vibration and noise, with increase in speed and less power consumption.

Heavy Cotton Surplus

Not Insurmountable Should Business Recover

WHILE suffering from the adversities of 1931, with its universal depression, difficulties and losses, and still faced by many uncertainties, the cotton trade is looking forward to 1932 with a considerable degree of optimism. This, however, is tempered by caution and buying except on declines, has been restricted by a realization that the market has to deal with a record-breaking surplus supply.

At this time a year ago it would have been difficult to convince many in the trade that there was any probability of raising the second largest crop on record during 1931. The reduction in acreage amounting to about 10%, was somewhat less than expected during the winter, but, as anticipated, there was a sharp decrease in the use of fertilizers, and during the early spring few appraised the crop outlook in excess of 14,000,000 bales. Indeed, of all the surprising things of 1931, perhaps, one of the most surprising was the production of a crop in the neighborhood of 16,900,000 equivalent 500-lb. bales and a lint yield per acre of 200 lb., or the largest on record since 1914, when the outturn was 209.2 lb. per acre. This was the result of an almost unprecedentedly favorable growing season with an ideal distribution of rainfall, while the reduction in the use of commercial fertilizers was offset to some extent by the fact that applications made during the previous season had not been utilized owing to droughty conditions, and plant food remaining in the ground became available during 1931. Another feature of the season was the unusually favorable autumn weather. As a result the crop not only increased but turned out unusually high in grade. While some low grade cotton has been coming in of late owing to the rains of early winter, it is welcomed by buyers who had found difficulty in securing their low grade requirements.

Meanwhile the improvement in textiles hoped for at the beginning of the year failed to materialize with the world's consumption for the last half of 1930-31 falling to very low figures and pulling the total for the season ended July 31, 1931, down to about 11,000,000 bales. The net result was a carryover at the beginning of August, 1931, of approximately 8,800,000 bales. This, combined with the present crop of perhaps 16,500,000 running bales and a moderate addition for the city crop and end-season ginnings, indicated a total available supply for the present season of about 25,447,000 bales as shown in the following table, referring to the world's supply of American lint cotton:

	1931–32	1930–31
Carryover	8,797,000	6,176,000
Crop, 12 mo. ginnings	16,500,000	13,685,000
City crop, etc.	150,000	125,000
Total	25,447,000	19,986,000
Disappearance*	.....	11,189,000
End-Season Carryover		8,797,000

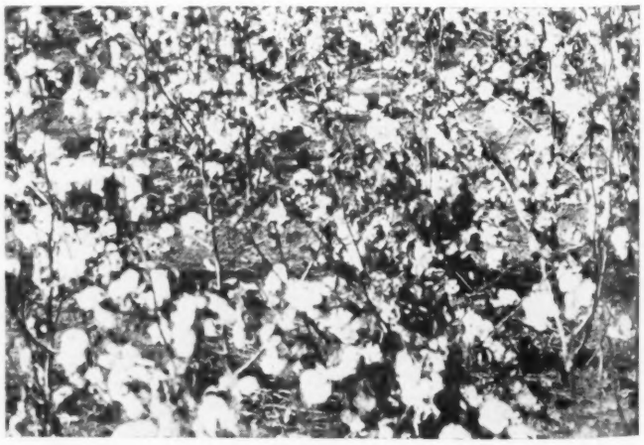
*Actual world's cotton mill consumption as reported by the International Spinners Federation was 10,907,000. The above figure including cotton destroyed, etc., is arrived at by estimate.

World consumption for the first four months of this season according to the New York Cotton Exchange Service amounted to 3,913,000 bales against 3,555,000 last year, an increase of about 10%, and it is generally considered doubtful whether consumption for trade year ending July 31 next, will exceed 12½ million, or possibly 13 million bales, pointing to a carryover at the beginning of next August of between 12½ and 13 million bales.

Such a statistical position not only helps largely to account for the declining trend of prices during the summer and autumn of 1931, but emphasizes all necessity of a substantial reduction in this year's crop combined with a decided improvement in trade conditions if there is to be any advance in prices or even if present quotations are to be maintained. Nevertheless the market has given a remarkably good account of itself since the break of last October when contracts for delivery during that month sold at 5.32 or within 34 points of the lowest price ever quoted for any contract in the New York market, which was reached in November, 1898, when the inactive month of November sold at 4.98 and December at 5.06.

As a matter of record the high and low prices for various active deliveries during 1931 were as follows:

During 1931	May, 1931 High	May, 1931 Low	July, 1931 High	July, 1931 Low	Oct. 1931 High	Oct. 1931 Low	May, 1932 High	May, 1932 Low	Oct., 1932 High	Oct., 1932 Low
Jan.	10.73	10.15	10.98	10.39	11.24	10.57				
Feb.	11.65	10.54	11.90	10.79	12.18	11.06				
Mar.	11.49	10.68	11.73	10.93	12.03	11.21				
Apr.	10.70	9.64	10.96	9.87	11.27	10.21				
May	9.98	8.92	10.19	8.45	10.56	8.79				
June	.....	.....	10.31	8.16	10.70	8.53	11.40	9.25		
July	.....	.....	10.17	8.70	10.53	8.36	11.25	9.09		
Aug.	.....	.....	.....	.....	8.44	6.57	9.14	7.23		
Sept.	.....	.....	.....	.....	6.96	5.81	7.65	6.49	7.84	6.67
Oct.	.....	.....	.....	.....	6.71	5.32	7.40	5.96	7.56	6.15
Nov.	.....	.....	.....	.....	.....	.....	7.28	6.35	7.43	6.54
Dec.	.....	.....	.....	.....	.....	.....	6.71	6.25	6.89	6.41



Following the October low prices a holding movement of unprecedented extent and firmness seemed to develop in the South, while there has undoubtedly been considerable buying by the trade on a theory that cotton purchased so far below apparent costs of production must ultimately prove profitable.

Perhaps a continuance both of the trade demand and the holding movement may depend in some measure upon the development of coming crop prospects and trade conditions during the spring and summer. Meanwhile efforts to secure uniform control of cotton acreage by legislation appear to be making little progress, but it is generally expected that there will be a considerable reduction as a result of economic conditions. Moreover, there is a feeling that the trade can hardly anticipate two such favorable seasons as that of 1931 in succession, and many are inclined to rely upon exhaustion of soil with a possible recrudescence of the boll weevil as active factors in a reduction in yields per acre.

It is, of course, entirely too early for formulation of opinions regarding the probable change in acreage or next season's crop prospects. The opinion of some authorities, however, is that voluntary reduction in acreage is not likely to exceed 15%, and supposing that 15% may cover both the reduction in acreage planted and the season's abandonment which usually amounts to about 3%, we would have an acreage for harvest this year of approximately 34,810,000 acres, or the smallest since 1922. The ten-year average yield per acre for the years 1921-30, was about 151 lb., and if this season's yield should not exceed that figure it would make a crop of about 11,000,000 bales on such an area.

These entirely fanciful figures would compare as follows:

	Acreage Planted	Acreage Harvested	Yield per Acre	Crop in 500-Lb. Bales
1921	31,678,000	30,509,000	124.5	7,953,641
1922	34,016,000	33,036,000	141.2	9,762,069
1923	38,709,000	37,123,000	130.6	10,139,671
1924	42,641,000	41,360,000	157.4	13,627,936
1925	48,090,000	46,053,000	167.2	16,103,679
1926	48,730,000	47,087,000	182.6	17,977,374
1927	41,905,000	40,138,000	154.5	12,956,043
1928	46,946,000	45,341,000	152.9	14,477,874
1929	47,067,000	45,793,000	155.0	14,824,861
1930	46,078,000	45,091,000	147.7	13,931,597
10 yr. average	.....	.....	151.4	.....
1931	*40,954,000	*40,495,000	*200.1	*16,918,000

*Preliminary December estimates.

Should such prospects develop in connection with indications of a firmly established upward trend in world's trade pointing to a substantial reduction in the surplus during 1932-33, the extent of the carryover from the crop of 1931 would hardly prevent a moderately higher market.

World's consumption of American cotton this season will undoubtedly be helped to some extent by the reduction of about 1,000,000 bales in foreign crops and the relatively high market for East Indian cotton. Substitution of American for East Indian such as that which occurred in 1926-27 is already finding some reflection in relatively heavy purchases in this country for Japanese and other Far Eastern accounts and recently there have been reports that some European spinners were cancelling contracts for delivery of East Indian and replacing with purchases of the American staple. Exports of cotton from this country to Japan and China up to the end of December were about 930,500 in excess of last

year's, while exports from Bombay to the same countries showed a falling off of 285,000 bales. It is possible, perhaps, that if present price relations continue, takings of American cotton will gain slightly more than a million bales this season at the expense of Indian.

In this connection the following table, compiled from the International statistics in running bales, may serve to illustrate the gains of American at the expense of Indian as a result of the big crop and comparatively low prices of 1926, and Indian's regain during the last two seasons:

	American	Egyptian	Indian	Sundries	Total
1921–22	12,757	748	4,926	2,736	21,167
1922–23	12,666	898	5,402	3,177	22,143
1923–24	11,107	1,028	5,409	2,886	20,430
1924–25	13,256	970	5,521	3,547	23,294
1925–26	13,730	921	5,572	4,458	24,681
1926–27	15,780	993	5,196	4,172	26,141
1927–28	15,407	956	4,523	4,654	25,540
1928–29	15,076	989	5,178	4,639	25,882
1929–30	13,023	937	6,087	5,162	25,209
1930–31	10,907	852	5,860	4,864	22,483

The more optimistic feeling noted at the beginning of the year was partly the reflection of an improved tone in the stock market, while much seemed to be expected of the Reconstruction Finance Corporation should it be created with an adequate capital. This would be expected to relieve the financial situation, and there has been much talk of a probable inflation of commodity values following the abandonment of the gold standard in England, Japan, and various other foreign countries. A broadening of the credit base in this country might work in a similar direction and the trade has been hopeful of an improvement in international conditions through an agreement of some sort on the question of war debts and reparations.

Spinning

Woolen Yarns to Meet Price *Presents Difficulties*

By Stanley H. Wheelock

President, Stanley Woolen Co., Uxbridge, Mass.

IF THE present price tendencies continue much longer, the manufacture of woolen yarns for the men's-wear and women's-wear trade may become a thing of the past. Never has there been such a succession of low prices placed on various ranges of goods as has been the case during the last year. One reduction on an established line made by a reputable firm is bad enough; but when competition, owing to lack of business, is so keen that mill after mill is forced to make two and three reductions during the same selling season in order to book a meagre amount of business, it begins to look as if there might be a radical change made in the type of yarns required for the cheaper fabrics.

Naturally, part of the price reduction is the result of lower salaries and wages and a greater study of manufacturing economies in all departments, but these economies alone will not account for the drastic reductions in prices, which are now in full swing. Quality, in several lines, seems to be a thing of the past; and the main object of a great many merchants is to obtain a cloth with, as its only qualification, an appearance which is fairly sightly. If it sells for a few cents less than some standard make, it seems to fill the bill; and the lowest-priced cloth, though made of inferior stock, wins the day.

Pressure on Prices

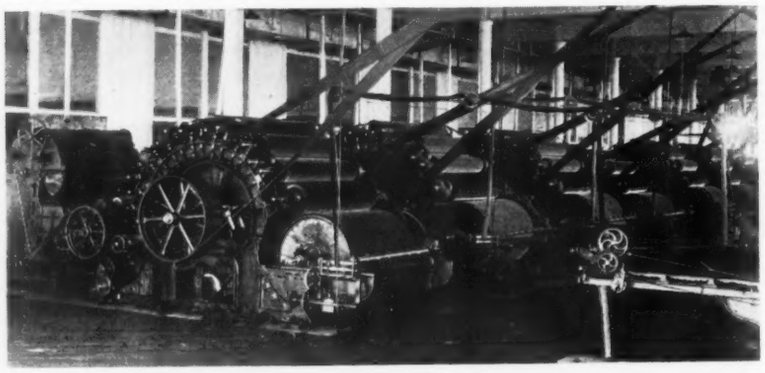
This new condition of affairs means a great deal to the woolen manufacturer, as he is literally compelled to reduce prices and to change the quality and composition of the stock which he has been accustomed to use. To a great extent he must experiment in the manufacture of the new yarns which it is now necessary to make in order to obtain even a small business.

If he is fortunate enough to be obliged merely to lower his grade of wool or spin a little larger-sized yarn of the usual quality, the change is not very great. He can usually continue to use the same oil emulsion on his stock and does not feel obliged to make radical changes in his carding and spinning departments.

Substitutes Bring Problems

If, on the other hand, he is forced to use substitute stocks in place of his wool, he at once encounters a new and often a difficult problem. The substitutes, such as woolen garnetts, cotton, and rayon, each require not only an intimate acquaintance with the best oil and proper quantity of oil, but also an accurate knowledge of the best type of card clothing required, the proper speed of the card, and suitable drafting and condensing. These changes can usually be accomplished after various trials, but not infrequently an entirely new set of card clothing having a different size of wire becomes imperative; and then the expense is so considerable that it more than offsets the advantage of the cheaper stock that is being used.

In the spinning department, the same thing is true. If the mill is busy today, nine times out of ten it is using a lower grade of stock. Costly experiments are necessary to obtain the proper draft, the number of turns of twist per inch, and the yarn test required for weaving perfect cloth.



Substitute stocks raise questions regarding suitable clothing, speed, and draft for the cards

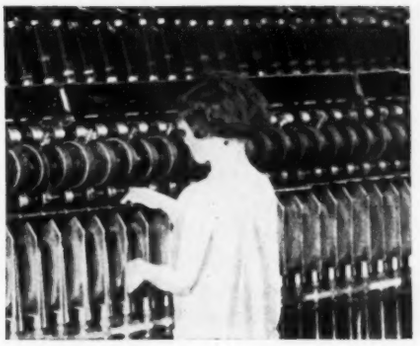
The tape card, of course, is universally used in the progressive mills, as it cuts costs and makes more perfect roving for the spinner, whether the mule or the frame is to be used. Each of the latter machines seems to have its advantages, and so we find both are being used in a great many mills today. With but comparatively small expense the frame can be equipped to do a good bit of the twisting that is required from time to time when some fancy or novelty yarns are desired.

Woolens in Style

The style trend for woolens for women's clothes during the past year bids fair to continue during 1932, and is one of the bright spots which is now encouraging the wide-awake manufacturer to greater efforts in supplying the various fabrics wanted. The demand for lighter-weight material suitable for women's dresses has caused many changes in mills that cater to this trade. New machines have been purchased and new and finer yarns have been carded, spun, and double spun, to meet the specifications. Novelty yarns are still being used to a great extent and add to the attractiveness of the new styles.

It is felt that the time is now ripe to break away from the quiet and conservative styles which have been popular in the men's wear field during this year of "repression." Manufacturers who give careful attention to new blends and well-made yarns will at least pave the way for a better business that should be due to start at any moment.

Higher Twists Bring Problems *to Worsted Spinner*



By L. M. Harless

IT IS a long time since twist in yarn played so important a part in the production of worsted dress goods as it does at present. The secret of making hard-twisted yarns of, say, 2/60 count lies first in the production of a level thread. High twist shows up faults in fiber distribution in a glaring fashion. Better fiber control has to be practiced in drawing, for it is in these processes that level yarns are made.

Success also depends on preventing the formation of snarls or kinks. Each time the cap frame is stopped at the noon hour or at the end of the day, one snarl per bobbin is made. Specially shaped caps are now used to overcome this defect, and yarns are made free from this fault. Also of importance is the after-treatment of the yarn on bobbins, spools, and cops to prevent the development of kinks during weaving or warping. This was a stumbling block until worsted spinners copied woolen spinners and steamed the yarn on the bobbins or cops.

In plain-weave cloth, hard-twisted filling is used and is being picked two right twist and two left twist. Endeavors are being made to elaborate this style by employing warp and filling yarn of a similar category. So long as the 2x2 order of warping and picking is preserved, little difficulty with the effect obtained is likely to be experienced; but immediately a 1x1 order is introduced, some unlooked-for things happen. For example, with a warp arrangement one left and one right twist, the obvious way to produce a hairline on the face would be to cover each left-twist thread with a right-twist pick, this being in accordance with well-established principles of design; but in point of fact it will be found that the hairline runs horizontally. Twist, being dependent on light reflection, is elusive; and in dealing with it nothing should be taken for granted.

There is a decided movement in favor of the intersecting gill box being used not only for short wools and botany, but also for fine and medium crossbreds. The makers have been inundated with orders, and this at a time when all other branches of industry have been exceedingly quiet. It is a rather surprising fact, and one of value to machine makers, to know that, although the intersecting gill box has been used for years by combers and spinners employing the Continental system, it is only since the machine was redesigned and made Bradford pattern that English-system spinners have been persuaded to adopt it. It has not been sufficiently recognized by worsted-yarn makers that though wool may be fairly long, it contains short fibers and that the skill of the comber in getting better tear from wools (i.e., in passing more short fibers into the top) has to be met by greater skill in controlling short fibers. For this the intersecting gill box is needed.

A further advantage in the use of the intersector is the reduction in fiber breakage due to the elimination of back draft, or its reduction to 1, which is the same thing. In ordinary gilling, the back draft is 1.1 to 1.2 and is necessary in order to get the wool into the pins; but in intersector boxes the fibers cannot escape pin treatment. Not only in early drawing, but in backwashing, intergilling, and finishing, the intersector is gaining popularity. Some users prefer it because an increased production can be obtained. There is no risk of the fibers riding on the pins, as is the case in the ordinary gill box when it is heavily loaded.

In England the year 1931 marks the passing of a large number of flyer spindles as a result of the increasing favor shown to ring and cap and the low demand for mohair yarn. Flyer spinning, though known to make fuller yarns with less twist, is hampered by low production. During the last twenty years improvements have been made, each in advance of the former, resulting in the speed of spindles being increased from 2,400 to 3,600 r.p.m., and fitted with satisfactory self-doffing appliances. A more recent frame made to run at 5,000 r.p.m. has not been successful.

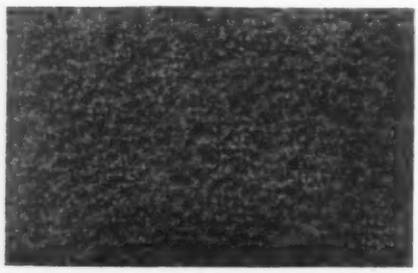
Also in England has recently appeared a ring frame which combines the principle of the traversing ring rail with that of the traversing spindle rail. At the beginning of the operation the spindle rail is stationary and the ring rail moves. When the bobbin is half filled, the spindles and rings are lowered at the same rate of speed; but, as the lifter continues to traverse the ring rail in the usual manner, the building of the spool progresses. The ring plate rises at the same rate of speed as the spindle rail is lowered. The longer packages which this arrangement makes possible reduces the frequency of doffs, cuts twisting and winding costs, eliminates some waste, and requires fewer knots.

A new ring twister has been introduced for making heavy yarns for the carpet trade. Its bobbins have a holding capacity of 26 oz. The twist is controlled by trap rollers, behind which are stop motions with detector pins for each thread. The trap motion is connected to the spindle-band guide fork, so that when an end breaks the spindle-driving band is transferred from the live to a dead cylinder and the spindle ceases to revolve. At the same time the rollers fall away and further delivery is stayed. When small lots of yarn are required in various twists, the use of a separate drive to the rollers at each corner of the machine proves an advantage. The bottom roller is divided in the middle and driven at each end; thus four twists can be obtained at one time on the machine.

Wool Weaving

More Affected by Changes in Style Than in Technique

By R. A. C. Scott



Typical bouclé fabric

IN REVIEWING mechanical progress as it affects the woolen and worsted weaving industry, we find that during the year 1931 inventions of a revolutionary character were wanting. With the exception of a few minor sectional improvements, such as "filling-end holder," "electric warp stop motion," etc., little or no progress was made in the mechanical field of action.

It will therefore not be necessary for us to look deeply into this phase of fabric production; and we may take this opportunity to study another related phase of considerable interest at the present time—viz., style vicissitudes as they affect women's coating fabrics.

Looking back over the past ten years it is interesting to note the large variety of fabrics acclaimed by the public as the correct trend for the various periods. From 1920 to 1922 inclusive, fashion experts popularized bolivias to such an extent that any other style of fabric was taboo. The year 1923 brought to fame suedes and astrakhans, both of which are similar in construction to the bolivia. Kashas and needlepoint fabrics came into the fashion limelight in 1924 and 1925.

From 1926 to 1930, broadcloths featuring the ripple, trico, twill, and crepe versions, and basket-weave cloths were Fashion's choice. The latter, as the name implies, is chiefly a weave problem, including a large variety of small to large effects. The cloth was generally of a soft and pliable construction.

The following year senta crepes and chongas were held strong favorites by the style-conscious. Weave and construction are the main features of the former type of cloth, giving a surface effect of a cluster of broken squares accentuated by the use of fine- and coarse-count yarns in warp and filling. The chief characteristic of the chonga lay in the yarn construction and the shrinkage during finishing. A typical yarn for this cloth could be made as follows: woolen and mohair blend (60% wool and 40% mohair) about $1\frac{3}{4}$ run, twisted with 1/30 worsted (hard twist), two-ply twist about six to eight turns per inch. The rough, crepy appearance of this cloth is due to uneven shrinking of the two-ply yarn.

Bouclés Favored

Coming down to the present we find bouclés the outstanding style for fall in women's dressy coats. This fabric was originally made with a fine worsted warp and a filling yarn of the ratiné variety but more pronounced in its nubby feature. The market, however, is now being flooded with cheaper imitations using cotton warps and cotton binders in the ratiné yarn. No mention has been made of the camel's-hair and polo types of fabrics due to the fact that they are both more or less always in keeping with the dictates of fashion.

A common fallacy among stylists is the belief that style trends run in cycles. No definite order of repetition can be formulated. In trying to forecast the future vogue in coatings, it would, I am afraid, be nothing short of suicidal to follow the order of the last ten years, as economic conditions have a direct bearing.

Another fallacy is the belief that whatever finishes strong one season will be a strong favorite for the following season. This prescription for divining the future trend is apt to lead the best intuitioned among us on the wrong path. In brief, there are no hard-and-fast rules available to guide the stylist in his predictions. It is really a question of analyzing and studying the psychology of the consuming public.

In order to illustrate the latter point, let us consider the spring prospects for bouclés. This fabric has been the exclusive style for this fall; but owing to its inferior wearing qualities, it is beginning to lose public favor. As a consequence, its adoption for spring 1932 is very doubtful notwithstanding its present popularity.

What, then, is going to take its place? In answering this question, can we take advantage of the cycle theory? I think not. The present indications of spring center around diagonals of a distinct weave character, coupled with a limited use of the bouclé type of yarn in the filling. Other cloths in this diagonal category replace the ratiné filling effect with a coarse kempy yarn, approaching the Scotch Harris appearance but of a softer quality and adaptable to piece dyeing in bright shades. Another version in this field is a mixture of wool and kid mohair, using a distinct diagonal weave of loose construction; e.g., seven-up, one-down, one-up, five-down, one-up, one-down, move-one weaves. In the finer cloths we have the same weave trend, but of course it is less prominent and firmer in construction. In short, the fashion for spring is unquestionably in direct contrast to the present vogue of rough-type fabrics and may be termed "the smooth-finished class of merchandise."

In predicting the trend for fall 1932, we may look to a continuance of smooth-finished cloths, with weave variations probably of the broken order. There is also the possibility of the return of the suede class of material. In reviving this cloth, however, I believe the use of novelty weaves may be successfully introduced by way of featuring something new and attractive. In conclusion, it might be well to point out that style predictions in the women's-wear field are contingent on foreign influence in conjunction with American psychology, making an accurate forecast one of pure conjecture.

Wool Trade Asked Fair Prices *and* Made Profit

THE raw wool trade has often been spoken of, with a condescending smile, as being hopelessly old-fashioned. All its methods have been jeered as being more appropriate to the last century than to the present. Disregarding entirely, however, the pros and cons of the question, the wool trade certainly demonstrated, during 1931, one real, old-fashioned virtue. And that was selling at a profit.

Best Demand in Nine Years

As a whole, the wool trade made money in 1931. Taking general business into consideration it made a lot of money. Behind that simple statement is much more than the fact that domestic wool met with the best demand in nine years.

At first blush it is easy to discount the brightness of the wool market by saying that, with such a demand, everyone should make a profit. It is only necessary, however, to point out that the woolen and worsted manufacturing industry must, of necessity, have met with the same demand—and few would venture the statement that the woolen and worsted industry, with a few notable exceptions, made money in 1931. In truth, the red ink makes a large blot. The difference lay in the fact that the raw wool trade sold at a profit, and the manufacturing industry, as individuals, tried to get all the business there was, almost regardless of price.

The 1930 Carry-Over

There was a large carry-over of wool at the first of the year. In the face of light demand prices beat an orderly retreat. During the spring the low price of wool, coupled with depleted clothing stocks, caused a renaissance in demand, particularly for worsteds. Combs, for example, were soon operating at the highest rate in six years. Raw wool dealers did *not* decide that it was time to hold off selling in hope of even better prices; they did *not* decide that, since here was an unexpected demand, the thing to do was to take advantage of it and dump all they could by cutting prices; they *did* decide to sell what they could at a fair price. Values actually advanced to some degree, but the large carry-over was still a factor and the advance was not sufficient to scare off buyers. And so, the dealers made a profit.

In the meantime, the wool manufacturing industry, particularly the worsted end, proceeded to cut prices in pursuit of the illusive god "volume," little realizing that this particular god was then present as at no time for the last five years; and as it may not again be present in the next five years. Profits were few and far between.

Price Movement Orderly

After the first nine months of the year, demand for woolen and worsted fabrics, and consequently for wool, fell off sharply. Again faced with light demand, and the probability of a large crop the next season, raw wool prices receded. The strike at Lawrence, Mass., the largest worsted center, which started in early October and continued for six weeks, was a factor which might have been expected to have a demoralizing effect on the market, but such was not the case. Examined against the background of what happened in other commodity prices, TEXTILE WORLD index figures show that wool declined in a singularly orderly manner and gave little or no evidence of "panic" selling.

Index numbers for 1931 were as follows:

Average first quarter	106	August	99
April	101	September	99
May	100	October	97
June	97	November	94
July	98	December	94
Base, 1914	100		

The trade is optimistic with regard to 1932. It is pointed out that wool is low in price and that clothing stocks are again inadequate. Dealers are sitting tight and waiting for demand. There is little evidence of forcing sales and the same sensible price attitude prevails. If such an attitude continues to prevail the wool trade will have the enviable record of making profits despite chaotic general conditions.

In the words of one dealer:

"We didn't do anything during 1931 except sell what we could, when we could, at a profit."

An old formula—but it works.

Recent Developments Foretell Marked

Changes in Silk Throwing

By George W. Searell

THE recent condition of the silk market has caused the throwster to realize the value of mechanical and chemical research. With the low price of silk, the throwster was confronted with the problem of greater production at lower cost. A quality yarn had to be produced in quantity, and scientific research in the laboratory gave the solution to this problem.

Quality of raw stock is the first essential in making a perfect product. After many years of research by Warren P. Seem, there has been placed on the market a machine which determines the nature, elongation, and breaking strength of raw silk. A new method of determining evenness, known as the 9-meter sizing test, is in the metamorphic stage. With the perfection of this method, determination of the evenness of raw silk, formerly made by visual inspection, will be foolproof.

A machine era approaches in the soaking of raw silk. The pioneer machine was developed about five years ago, and during the last year has been improved by cooperation between a prominent throwster and a machine builder. With this equipment only 30 min. is required to soak a bale of raw silk and a relatively small volume of emulsion is needed. Two other machines of more recent origin, both using a method of circulating the soaking emulsion through the skeins by means of a centrifugal pump, are now available.

It appears that if it were possible still further to reduce the handling of raw silk in soaking, the hazard of split fibers and tangled skeins would be minimized. Present practice is to remove the soaked silk from either the tub or machine and place it in a hydro-extractor. A self-contained machine should be developed to soak and hydro-extract in one operation. Some work has been done along this line, and suitable equipment no doubt will be developed eventually.

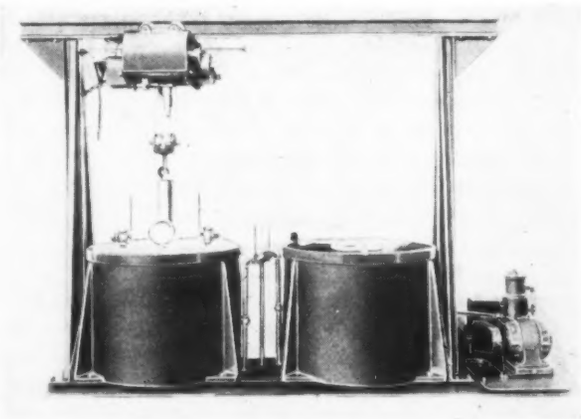
Another possibility is a machine which will take the untwisted, raw, dry skein; soak for the required time; hydro-extract; and deliver dried in the correct condition for winding. This method of soaking can probably be accomplished by using a basket-hydro-extractor equipped with a variable speed drive. The opened silk may be fed into the basket while the extractor revolves slowly and a fine spray of soaking emulsion played upon it. When the whole bale has been wet out in this way, the liquor which has been collected in a reservoir can be recirculated by a centrifugal pump to complete the exhaustion of the bath. Next the basket will be revolved at a higher speed in order to reduce the moisture in the silk to the desired amount. Finally, a jet of warm air will be entered to dry the silk, so that when removed from the basket, it will be in proper condition to place on winder swifts.

A throwster may buy the best raw silk possible and have the finest throwing machinery, but if he uses poor soaking oils, he will find it impossible to produce a good uniform yarn. Considerable work has already been done towards the development of suitable soaking oils, but there is much more to be accomplished. A knowledge of theoretical and applied soaking is vital, yet only the surface has been scratched on this huge research subject. Recently the present writer published a method of testing soluble silk-soaking oils which, by a combination of chemical analysis and actual mill tests, determines the suitability and uniformity of these products.

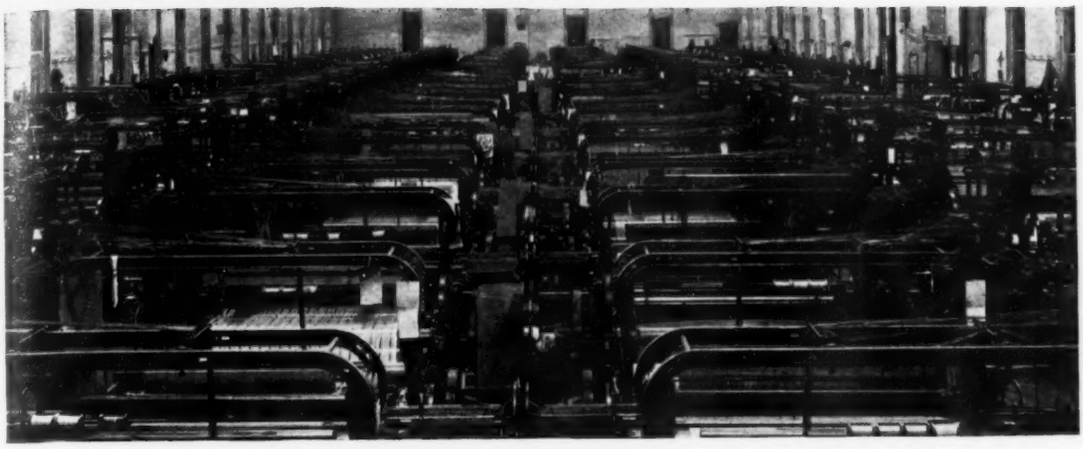
Throwing Equipment

By the cooperative efforts of machinery builders and throwsters there have been developed recently a number of improved types of throwing equipment. There have been brought out, for example, winders with oil-less bearings designed to eliminate oil spots on the silk, and high-speed combination doublers and spinners capable of developing 7,000 r.p.m. These spinners, which are particularly suitable for imparting a high twist to the yarn, have positive individual-drive spindles, a simple twist-gear change, and a filter for cleaning all spindle-gear oil.

Noteworthy also are several new types of rings and travelers; the rings are of the flange type, and the travelers have radically changed from the bar type made of piano wire to the small, flat-steel cotton type to give the high speed required. Bobbins with non-rusting, moisture-proof heads have replaced the older types and allow the yarn to be steam set on the spinner bobbins. Finally should be mentioned new types of coning machines which have compensating wear-proof tensions and cleaners and positive spindle-starting clutches to enable a slow start after a knot has been tied. In these machines the troublesome gainer belt has been replaced by inclosed gears.



Double-unit, silk soaking machine



Widespread acceptance of automatic loom may render obsolete many silk weaving departments now considered up-to-date

Important Technical Advances in Silk Weaving

By H. E. Wenrich

TO the few who have managed to obtain a share of the worth-while business available during the last year, much credit is due. Alertness for improvements at the start and a policy of keeping abreast of the times have been among the reasons for success. Not luck, but foresight, has done the trick.

We all know that the last year has been a trying one for every industry; but this is particularly true of textiles, in which throat-cutting methods held no regard for anyone. When goods are to be woven at the mill at a cost of 18c. per yd. and the price keeps swinging downward to 10c., is it any wonder that manufacturers throw up their hands and go under?

The past year has shown manufacturers that, regardless of cost, if any fair profits are to be had, they must be equipped with modern machinery. Antiques in the machinery line twenty years old should in most cases be replaced with more efficient equipment. However, the modernization of a plant can often be accomplished by attaching improvements to old-type machinery which will bring it up to date. It is a fact that selling prices are often taken out of an industry's control, but production costs remain forever the responsibility of the mill; and it is to the mill that the manufacturer must look for an opportunity to increase his profits today.

There are several factors in the modern silk plant which show foresighted management; i.e., speedier and less complicated machinery, labor-saving devices, sufficient supplies, and a willingness to replace obsolete parts with more modern devices. Credit for modern equipment can be given when that equipment has been the means of realizing profits during a lean year. Hence, it will be seen that the depression should boom modern machinery; for, as prices drop, the machine is the place where profits can be made, if any profit is to be realized at all.

Automatic Looms Well Received

The shuttle-changing automatic loom should make its mark in the industry. Time will show that non-automatic looms cannot hold their own against the automatic type. One weaver handling eight such looms can cut the weave costs in half, saving from 2 to 5c. per yd., according to the construction. A section of these new looms should pay for itself within a short time.

Another machine which has recently been the center of considerable attention is the high-speed warper. This warper, running on rayon with a speed of 320 yd. per min., is capable of turning out four times the production of the old-style warper. A year is a short period of time when considered in some lights, but seems ages when progress such as this is made. The latest high-speed warpers are reported to pay for themselves within a year.

Not only in the weaving and warping processes have radical changes been brought about, but also in the winding and twisting departments. In winding we have oilless bearings decreasing the amount of wear on the spindles and eliminating the oil-staining of the silk threads. The introduction of a successful knotting machine for the tying-in of hard-twist warps has lowered twisting costs. The use of the new midget feeler motion for filling and the adoption of larger quills have decreased cost of quilling and improved the merchandise.

All these improvements have shown that today the industry is being served by wide-awake firms, building ingenious devices to modernize every type of silk machine; and the necessity of installing such devices has never been felt so keenly as at the present time. The new year will present the same opportunities to all, but the rewards will go to those who equip themelves to handle production at the lowest costs.

It is up to the manufacturer to find out the advantages of the improvements offered and to obtain the benefit of such improvements. The past year showed truly that those who were foresighted were the ones who cornered the business which was to be had.

Rayon Production and Consumption

Set New Record

ANY industry that could make *and sell* a record quantity of its product in the year 1931, has staked out its claim to a place in the sun. That is just what the synthetic fiber industry of the United States did.

TEXTILE WORLD estimates last year's production at 144,350,000 lb. This is well below the estimate made last September and based on hopes of manufacturers at that time. It is, however, well above the previous record year, 1929, when 123,130,000 lb. were produced.

Our estimate of 144,350,000 lb. checks very closely with the figure of 143,900,000 lb. released by the *Textile Organon* of Tubize Chatillon Corp. shortly after our own compilation was concluded. The *Organon's* estimate was based on figures supplied through the cooperation of manufacturers representing 96% of the industry.

Estimating 1931 sales at 152,350,000 lb., and taking into account imports of about 2,000,000 lb., we figure consumption last year at 154,350,000 lb. This compares with the *Organon's* estimate of 150,100,000 lb. In that consumption of its product was well above output, the domestic industry fared much better in 1931 than did rayon manufacture in the world at large.

It undoubtedly is foolhardy to attempt to estimate probable 1932 production. However, since we do not qualify as "angels," we shall adopt the other role and "rush in." Combining actual figures on expectations supplied us by certain manufacturers with our own estimates as to the rest, we get a possible output of slightly more than 150,000,000 lb. of rayon and other synthetic fibers in 1932.

On its face, this prediction (if it could be called that) is subject to all sorts of qualifications. It is of course quite possible from the standpoint of installed capacity. The latter is figured at slightly under 200,000,000 lb. A production of 75% of theoretical capacity would not mean pushing plants beyond a reasonable limit.

However, the consumption factor is something else again. The above figure presupposes a demand approximately equal to that of 1931. Here, we are getting into the realm of forecasting the trend of general business this year—a region into which most of the statistical explorers are not venturing. But (there is always a "but" in discussing rayon) continued aggressiveness on the part of yarn producers might enable last year's sales to be again achieved even if general textile demand fell off. After adding these two factors and dividing by two, we have decided to let the 1932 estimate stand for the moment.

Turning to a less debatable phase of the rayon situation, the continued decline in imports warrants comment. Last year's total, 2,063,287 lb., was the lowest since 1924. It compares with the peak of 16,222,545 lb. in 1927. It was not much more than a third of the importation during 1930, when synthetic fiber consumption as a whole fell off badly. In the last month of 1932, only 35,607 lb. of yarns and filaments were brought in, as against a monthly average of 184,334 lb. for the first 11 months of the year. The December figure of 35,607 lb. compares with the record importation, for one month, of 1,785,538 lb. in May, 1927.

In other words, the business of importing synthetic fibers into the United States has dwindled, for the time at least, almost to the vanishing point. It is back approximately to the level of the prehistoric days when we consumed less than 40,000,000 lb. a year.

A word about estimating rayon production: The move on the part of the industry to develop its own statistics which materialized early this year is a hopeful trend. It should foreshadow other forms of cooperative effort. If this statistical compilation becomes a regular part of the industry's program we shall be relieved of the necessity of preparing our own figures and shall of course accept the producers' statistics as official.

U. S. and World Rayon Production, by Years
(In pounds)

	United States	World
1920	9,000,000	50,000,000
1921	18,000,000	65,000,000
1922	26,000,000	79,738,000
1923	35,000,000	97,000,000
1924	38,750,000	141,164,000
1925	52,200,000	185,000,000
1926	62,575,000	219,080,000
1927	75,050,000	266,868,000
1928	97,701,250	344,550,000
1929	123,130,000	404,155,000
1930	119,000,000	416,775,000
1931	144,350,000	467,505,000

An Assured Future

It is unnecessary to dwell here upon the unsatisfactory profit position of the rayon industry during 1931. That has been discussed at length in these columns and elsewhere.

Instead, major emphasis should be placed upon the significance of the total quantity consumed. Those who have doubted the permanence of the synthetic fiber development must have had their doubts finally removed during the last year. Those who have tried to set a limit on the potential consumption of these fibers must now be discouraged. 1931, in our opinion, proved conclusively that no such limit can be placed.

Continued expansion is to be expected over the broad

future, irrespective of temporary and recurring interruptions.

Technical developments of the last year, however, lead us to believe that such expansion may not necessarily be confined to existing units and processes. Research is still the *x* in the future of any rayon company. Through research, gradual revamping and possibly even scrapping of equipment now in place may eventuate. We say "gradual" because we have no expectation of sudden and complete revolutionizing of the industry. But we do know that any producer who feels he has a "pat" hand, and sits tight, may someday wish he had asked for five new cards.

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World Rayon Output Gains

From TEXTILE WORLD'S *Manchester (Eng.) Rayon Correspondent*

THE estimate of world production of rayon in Table I shows a considerable increase when compared with estimates made earlier in the year. The consumption estimate, however, has not increased in proportion. It is unfortunate to have to record a fairly substantial increase in stocks thoroughout the world during the latter half of the year. The falling away in demand in many of the largest consuming countries has been mainly responsible for this.

The financial crisis in Germany has resulted in consumption in that country falling considerably below expectations. Perhaps the most interesting feature of the production and consumption table is the advance of Great Britain. It was thought a few months ago that British production would fall below the 1930 level, but the last quarter of the year has seen a very big change. Following the change over from the gold standard there was an immediate increase in demand for rayon yarns, and later in the year the new duty on rayon hosiery resulted in considerable additional machinery being put into operation. The British figures are based on the returns for the first 11 months, and British production in November reached a record figure for all time. Home consumption has expanded substantially in Britain and virtually makes up for the loss in export business.

There is no doubt that Italian production increased more rapidly in the last few months of the year than was expected, though unfortunately clearances have not been as good in the export markets as could have been wished. Japanese stocks have also caused a certain amount of anxiety towards the end of the year, but output has not been increased as rapidly as was planned. The new duty on rayon piece goods into India has resulted in a smaller consumption by Japanese manufacturers.

French output has been rather larger than at one time expected and consumption has been maintained at a higher level than has been the case in many countries. Holland continues to be very largely an exporting country and the depression in the large consuming countries has resulted in smaller sales. Production and sales, however, are believed to be keeping close together in the Dutch industry and the position seems fairly satisfactory. Both Belgium and Switzerland show production figures rather larger than was originally expected, but the stock position grew worse in these countries in the closing months of the year.

TABLE I — ESTIMATED PRODUCTION AND CONSUMPTION OF RAYON — 1931

(In Thousands of Lbs.)

	Production	Consumption
Belgium	10,150	5,148
Britain	54,165	48,200
France	38,320	18,460
Germany	52,000	62,500
Holland	20,250	2,350
Italy	74,000	23,000
Japan	47,450	43,000
Switzerland	9,000	3,200
United States	144,350	154,350
Others	17,820	80,400
Total	467,505	440,608

TABLE II — ESTIMATED PRODUCTION OF RAYON YARN BY COUNTRIES AND PROCESSES — 1931

(In Thousands of Lbs.)

Country	Viscose	Acetate	Cupra	Nitro	Total
Belgium	9,300	850	.....	.....	10,150
Britain	43,935	9,830	400	.....	54,165
Canada	4,400	1,200	.....	.....	5,600
Czecho-Slovakia	4,620	.....	.....	.....	4,620
France	32,120	5,550	650	.....	38,320
Germany	42,300	3,200	6,500	.....	52,000
Holland	20,250	.....	.....	.....	20,250
Italy	70,300	2,200	1,500	.....	74,000
Japan	47,000	.....	450	.....	47,450
Poland	4,850	.....	.....	.....	4,850
Switzerland	8,850	150	.....	.....	9,000
United States	124,025	10,825	2,500	7,000	144,350
Others	2,750	.....	.....	.....	2,750
Total	414,700	33,805	12,000	7,000	467,505

Consumption in the United States fell away following the cancellation of the 90-day guarantee arrangement, and there is no doubt that price confidence is one of best tonics the rayon market can have. However, with the year's consumption substantially in excess of output the American producers have little cause for alarm about the stock position.

In Table II it will be seen that there have been few startling changes in the distribution of production by processes. United States manufacturers lead in every type except cuprammonium, in which type Germany still accounts for the greatest amount. Viscose output is still very well maintained and in the table it will be found to be not far short of 90% of the total (actually about 89%). The United States and Britain lead in acetate production, though France accounts for a fair proportion of the trade in this type of rayon. Nitro-cellulose output is now confined to the Tubize-Chatillon output, as all the European makers have closed down their plants. The expansion of the Bemberg group during the year can be seen in the estimates of cuprammonium production in Japan and Britain.

Perhaps the production and consumption figures reveal not too happy an economic situation in the rayon trade, though there is reason to believe that 1932 will bring better results and more co-ordinated production in most countries. Britain was the only country which finished the year 1931 really strongly and this was due to the artificial stimulus of the depreciation of the £ and the new duties on hosiery, and there is a distinct possibility that the next few months will show that British users bought too far ahead.

Mill Men and Chemists Develop Better Rayon Yarns and Fabrics

MARKED improvement in the appearance and handle of rayon yarns and fabrics attests to the steady progress made during the last year in the manufacture of synthetic fibers and their conversion into finished goods. In reviewing the technical developments which have been reported in TEXTILE WORLD during the last year, it is impossible, however, to overlook the fact that rayon manufacturers have as yet done little to increase the tensile strength and elasticity of the yarns which they are producing. Continued research is necessary, therefore, to discover means to improve these properties of the synthetic fibers.

It must be noted also that there has been some tendency towards the debasement of manufactured fabrics, this being exemplified by the so-called weighting of rayon knit goods. Counteracting this trend are the "quality-control plan" initiated by one of the leading viscose producers, steps being taken by other rayon companies to discourage the manufacture of sleazy merchandise, and adoption of tentative standards for rayon underwear at a recent trade-practice conference. It is hoped that the futility of the practice of deliberately cheapening rayon fabrics will become more generally realized, and that it will be brought to a stop.

More pleasant to record are the numerous achievements in manufacturing and processing rayon yarns and fabrics. What may prove perhaps to be a most significant development in the synthetic-fiber industry is the commercial production of cuprammonium rayon by a method which permits spinning, washing, drying, and twisting of the yarn in one continuous operation. The time required to transform the dissolved cellulose into finished yarn is less than three minutes. At the same time, the acetate process continues to grow in importance; and late last year a new entrant in this field started the manufacture of acetate yarn by an improved method.

Viscose Manufacture

In viscose manufacture, the spool- or bobbin-spinning method, employing large bobbins, steadily gains favor. A longitudinal spool-spinning machine which permits the use of 125-mm. spools and gives the undulated wind developed some two years ago was introduced in the fall. This machine is equipped with automatic doffing mechanism and is designed to allow spinning at speeds in excess of 100 meters per minute. Simplification of the pot-spinning method has also taken place, and the time required for washing and purifying the yarn has been reduced. In order to avoid handling of wet skeins, methods for desulfurizing and bleaching in "cake" form are receiving careful attention. Another noticeable trend in the rayon industry is toward greater uniformity of denier and finer filaments. There is also a growing tendency on the part of all producers to supply yarn in the package form desired by consumers. In this connection it should be pointed out that the use of oil which can be thoroughly and easily removed from the yarn is desirable.

The increased use of spun rayon has been accompanied by a greater demand for staple fiber. A number of revolutionary developments have been announced which indicate that synthetic fibers may in the future be produced from entirely different raw materials than are now employed, but these are all in the experimental stage. In all processes there has been intensified search for improvements in manufacturing which will reduce costs and simplify methods.

Throwing

No radical changes have been made in the machinery used by the rayon throwster; and in fact, it has been found necessary in some instances to revert to earlier methods to obtain the quality previously secured. Quill winding from skeins, which works well on some deniers, may produce seconds in the weave room due to shiners, broken filaments, etc.; and as higher spindle speeds can be maintained when running from spools, rather than from skeins, the cost of spool-and-quill winding can be kept at or near that of single-process winding. Demand for delivery of finer deniers on cones has influenced many more throwsters to change from the sharp, tapered spindles to those accommodating cones of the bulldog type which permit spindle speeds of 1,000 r.p.m. with little danger of strained yarn, broken filaments, or bad cones.

High-speed warpers designed particularly for rayon have replaced older types of equipment in a number of mills. With modern warpers speeds in excess of 300 yd. per min. on 150-denier viscose and 100-denier acetate are being reported. Considerable improvement has been made in methods and equipment employed in warp sizing. By the installation of a five-cylinder sizing machine, for example, it has been found possible to size acetate yarn at high speeds and at the same time to produce a softer and more pliable warp than is possible with three-cylinder machines. A number of new sizing materials developed particularly for use on rayon have been brought out in recent months.

Weaving Rayon

While there have been few changes in the methods employed in weaving, improved high-speed silk looms which have recently been developed are being watched with interest by the rayon weavers. Many new and interesting woven fabrics of rayon have made their appearance, a number of them being composed in whole or part of spun rayon. A few of the more popular materials include dress goods with 60/2 spun rayon in warp and filling, poplins with 60/2 staple-fiber warps and 100-

denier continuous-filament viscose fillings, a novelty fabric with 100-denier acetate warp and 30/2 spun-rayon filling, and an all-rayon faille with dull-luster rayon warp and rayon crepe filling. Other interesting fabrics include women's suitings with dull-luster rayon warp and tussah silk filling, fall coating materials with wool-and-rayon warp and filling, and a checked georgette with rayon and acetate in both warp and filling.

In addition to the uses already mentioned, staple fiber has been employed in plushes, velvets, floor coverings, upholstery, blankets, and many other fabrics. Acetate linings for men's wear have again become important, and a number of mills are producing this type of material.

Rayon waste and staple fiber are being handled satisfactorily on the woolen and worsted systems and on cotton machinery. One of the larger rayon producers has cooperated in planning a layout for spinning staple fiber. Tests following his suggestions as closely as available machinery permitted have shown that with certain modifications in the various operations, little difficulty is experienced in spinning this material on the cotton system.

Knitting

It is estimated that well over half of the domestic production of rayon goes into the manufacture of knit goods. Despite the low price of silk, increasing amounts of synthetic fibers are being used in both full-fashioned and circular hosiery. Yarn is now supplied to the knitter in much longer continuous lengths than in the past and containing a sufficient amount of oil so that in the majority of cases it is unnecessary for the knitter to apply additional lubricants. Improvements in winding equipment have been made to give more uniform tension on the yarn and to prevent damage due to abrasion. The knitter in turn is exercising more pains in feeding the yarn at a uniform and not too excessive tension. Diversified uses have been found for warp-knitted fabrics of rayon, and the trend at present is to employ more and more rayon—either alone, or with cotton, wool, and real silk.

Processing

With the increased production of synthetic fibers, a larger number of dyeing, printing and finishing plants are handling rayon yarns and fabrics. During the last year many refinements were made in the methods employed in processing, and at the same time, a number of new and improved machines were brought out. In yarn dyeing, for example, further progress has been made in the production of level dyeings without impairing the winding qualities of the yarn. With this in mind, dyers have exhibited considerable interest both in improved models of the conventional type of skein dyeing machines and in equipment of unique design which gives a relatively large flow of liquor through the yarn combined with a slight movement of the skein. Likewise, further attention has been paid to package dyeing of rayon, and noteworthy advances have been made in this field.

In processing hosiery and other knit goods the removal of oil previous to bleaching and dyeing still remains somewhat of a problem. Use of scouring baths with exceptionally good emulsifying power has been found to minimize this difficulty. An improved one-bath method for scouring, bleaching, and dyeing knit goods and other fabrics containing rayon was announced early in 1931. Renewed activity in processing acetate lining fabrics has accompanied the increased demand for these materials. As a result, refinements of existing processing methods have been made which enable the finisher to turn out fabrics that are highly satisfactory in appearance and serviceability. It is now realized that particular care is necessary to avoid creasing of fabrics containing acetate yarn, and processing methods have been modified accordingly.

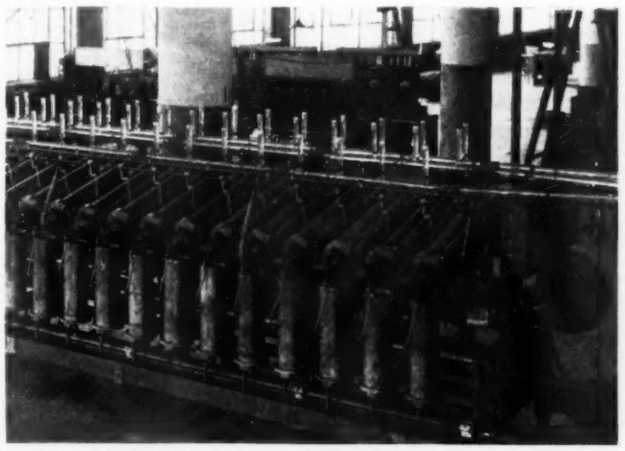
In iron-proofing acetate fabrics addition of a swelling agent, such as phenol or alcohol, to the usual alkaline saponification solution has proved beneficial. Recently a method has been patented whereby acetate fabrics, after a preliminary treatment with an alkali, are saturated with stannic chloride and sodium silicate or other weighting agents. It is reported that goods processed in this manner can be ironed safely at temperatures considerably higher than can be employed with fabrics treated only with caustic.

Delustering of acetate fabrics continues, for the most part, to be conducted in the conventional silk boil-off vats. Efforts to develop continuous methods of delustering have met with a certain amount of success, but further work in this direction is needed. A new finishing process for imparting a soft, mellow handle to fabrics composed wholly or in part of rayon consists of treating the goods with steam at a suitable temperature and pressure. The fabric is then cooled, and the steam removed by forcing air through the goods.

The caustic treatment, a fairly recent development in processing rayon crepes, has been more or less generally adopted during the last year. This process as yet is hardly out of the experimental stage, but it has proved of considerable merit.

Although a number of important developments have occurred in printing fabrics containing both regenerated-cellulose and acetate yarns, few details have been made public. Mention may be made, however, of the increased use of photographic methods for engraving printing rollers, and of a new photographic method of printing textiles which eliminates the necessity for rollers, screens, and blocks, the material being impregnated with a sensitizing solution and used as a film to receive the printing. Also should be noted the production of improved printing gums developed particularly for use with rayon fabrics.

As would be expected, increased use of staple fiber and rayon waste has brought new problems to the dyer and finisher; modifications of the usual methods for handling fabrics containing continuous-filament rayon have solved most of these problems however, and goods containing spun rayon and staple fiber are now being finished in a satisfactory manner.



Spinning machine for production of cuprammonium yarn by continuous process

Inventive Genius Active in Knit-Goods Field

By John Chamberlain, F. T. I.

THE knit-goods trade, in common with other sections of the textile industry, has suffered from the effects of the world depression and the reduced purchasing power of all nations. This has tended to delay any extensive exploitation of some existing patents, but nevertheless some interesting innovations have appeared during 1931.

Full-Fashioned Hosiery

With straight-bar, spring-needle machines for making gum-silk, full-fashioned hose, the outstanding developments chiefly concern the building of finer-gauge machines (up to 54-gauge) and the addition of mechanism for producing more elaborate clocks, improving the splicing of the parts preceding the heel tabs and toes, making better picot edges and lace welts, and speeding the operations, together with the building of machines with central drive to make 24 hose legs. The introduction of the one-piece machines has also been received with favor in some quarters; and, although this idea is by no means new, it offers distinct possibilities, especially if eventually the knitting of the instep is curtailed to give the hose the correct shape, as in knitting the Niantic or Griswold heels and toes.

Single unit machines have not yet displaced leggers and footers

A full-fashioned, plain, one-half hose or men's sock has been patented which is fashioned rapidly towards the front and fitted with a knitted band to embrace the leg below the knee, thus being self-supporting without the aid of a suspender. Rubber threads which are actually knitted for a few courses are being introduced into the tops of hose, socks, three-quarter hose and sports hose for the same purpose. The rubber threads are processed to withstand dyeing and laundering and are covered with the same material as is used in the rest of the hose, so as to obtain a uniform shade in dyeing.

Circular Hosiery

Developments have taken place in the building of machines for making fancy-plated half-hose or socks, machines possessing twelve steps or changes in reverse plating and making vertical effects by means of lap or wrap stripes being particularly popular. Two other types of machines have been introduced; viz., a superimposed-cylinder machine for making fancy-plated half-hose complete with 1x1 rib top and an embroidery machine fitted with step-designing mechanism or paper jacquard control and using a maximum of one design yarn to each needle. This can be plated or knitted-in at the back according to the selection made.

Improvements have also been made in fancy golf hose or three-quarter hose top machines by the addition of web-holders and by the use of one designing unit only for two- or three-color designs. Another development on rib-embroidery machines has been effected; in this case only the embroidery yarn is knitted on the selected needles, so that the design is unaffected by stretch.

Fashioned Seamless Hose

Distinct developments have been made on circular, seamless-hosiery machines for the production of wale-fashioned hose. In one instance a 5-in.-diameter machine is used, and a seamless toe is first made on the required number of needles. The foot is knitted by reciprocal knitting and widened prior to the knitting of the heel. Further widening takes place until all needles are knitting, when circular knitting is introduced.

In the second case an annular ring is placed round the needle cylinder, and this carries an extra number of needles. Knitting is commenced at the top; and at the desired intervals the loops from the fashioning needles, which lie horizontally, are transferred to the cylinder needles. When all their loops are transferred, the machine functions as an ordinary seamless-hose machine. In the third case the hose is commenced at the toe; and alternate needles in the heel half of the machine are kept out of action during the knitting of toe, foot, and heel. Needles and sinkers are then introduced on each side until all needles are knitting. This gives a certain ornamentation in a triangular form above the heel and shows where the needle and sinkers are introduced.

Both of the two latter types of machines are mechanically perfect, but the prejudice of buyers against the appearance of the hose has prevented them from

Circular-hosiery machine developments have improved quality and lowered cost of product

becoming a commercial success up to the present time.

Further patents have been taken out for the production of seamless run-proof hosiery; and excellent results have been obtained, although machines have not yet been placed on the market. The most advanced machine employs means for combining wale-knitting with ordinary knitting, the face of the fabric being composed of ordinary loops with the locking wale threads knitting loops in chains at the back.

Circular Underwear and Outerwear

No really fundamental change has taken place in the construction of plain-web machines, although these are now being built in finer gauges with either latch or spring needles. European manufacturers are preferring large-diameter machines (up to 40 in.), especially of the "terrot" type, and are finishing their web of this width quite successfully.

Rib- and interlock-machine sales have been well-maintained. Improvements have been made in the prevention of "press-off," and also in the drawing-off or fabric-take-up mechanisms. One builder of these machines has introduced a new form of take-up which functions in a positive manner. Each of the rollers between which the fabric passes is operated, through worm gearing, by means of a dog-pawl, the movement of which can be adjusted to give take-up required.

Simple machines capable of making a 2x2 welt, with automatic change to plain, 1x1, or tuck rib have been introduced to compete with the flat-knitting machines. Jacquard machines with automatic change from 2x2 welt are now built with six feeds for three-color effects. Circular purl machines with design cylinders for producing large "straight" patterns in plain and purl have now been perfected and are supplying a distinct want in the manufacture of kiddies suits and other juvenile garments. Machines with four feeds, possessing up to ten needles per inch, are available.

Flat and Warp Machines

In flat machines considerable developments in double and treble systems of power jacquard machines have been made, and double-system machines with jacquard selection for both stitch and colors have been in demand for making high-class jumpers and pullovers. The making of original designs for bathing costumes and beach suits has been simplified by the introduction of power "intarsia" machines with multiple yarn guides having a traverse automatically determined by the position of stops clipped to chains which are under wheel or jacquard control. Other intarsia effects are produced on treble-system machines with needle jacquard control.

Similar effects can be obtained in the purl stitch on the flat-bar purl machines.

During the year, spring-needle, warp-knitting machines have been fitted with tuck pressers to produce shadow stripes and other more ornamental designs on rayon fabrics, thus introducing possibilities for a more varied selection of lingerie garments—a much-needed development. Warp-knitted lace or open designs have also been in vogue, chiefly for use in outerwear garments.

The warping of the threads prior to knitting has also received attention, and it is now possible to warp direct from the bobbins to the beams used on the warp-knitting machine.

Miscellaneous Developments

While the manufacture of non-elastic knitted cloths is still in abeyance, outerwear garments made from rib-jacquard fabrics which are given a semi-cloth finish have been very popular for walking and sports attire.

More attention is being paid to the use of knitted fabrics in the manufacture of corsets and brassieres. In some quarters the actual knitting of covered rubber threads is advised, and various experiments are being carried out in this direction. At present the elastic threads used are generally enclosed as straight filling threads to give the pressure required. Other experiments are being made with rubbered interlock fabrics made from Egyptian cotton for the purpose of automobile tire construction in place of the ordinary canvas or cords.

Machinery Makers

Have Even Less to Be Thankful for than

Textile Manufacturers

CONSIDER, for a moment the textile machinery maker.

Much has been said and written about the plight of the poor textile manufacturer. But he at least did a fair volume of business. The machinery man, on the other hand, has not had even this profitless form of prosperity. Selling to an industry which, temporarily at any rate, has over-reached its expansion limit, he must pin his hopes largely on demand growing out of modernization. Any one familiar with the credit situation last year knows the difficulties involved.

The result, in 1931, was that dollar volume of textile machinery sales was approximately 15% below 1930, which in turn was about 33⅓% below 1929.

A statistician could pick all sorts of holes in these estimates. There is nothing absolute about them. They are obtained merely by averaging the ratio which the dollar volume of business done in one year by individual firms bore to the business done in the previous year. Companies were not asked to submit figures showing this dollar volume, but merely percentages. Consequently the average is based on number of firms and not on total sales. Furthermore, it does not reflect, with complete accuracy, the sales in number of units since price changes are not taken into consideration. However, the estimates at least indicate the general trend.

Naturally, there was considerable disparity among firms, and particularly among groups. Taking up the latter, it is interesting to note that manufacturers of preparatory, spinning and weaving machinery averaged a 23% decrease in 1931 against 1930, which was very close to that reported by knitting machinery firms, the latter being 25%. On the other hand, makers of bleaching, dyeing and finishing equipment showed an average decrease of only 9%. Manufacturers of accessories did almost as much business in 1931 as in 1930—the decrease being only slightly over 1%; this of course reflects the comparatively high rate of activity enjoyed by textile mills.

Although there was variation among figures quoted, the report of lower volume was quite uniform. Of the total number of firms who cooperated, 85% experienced a decrease, 10% found increased sales, and 5% reported no change.

Outlook for 1932

Looking ahead into 1932, not too much encouragement can be gained from this survey. While last year, the majority of firms anticipated an improvement in 1931 over 1930 (didn't we all?), this year only about half are optimistic—and those conservatively so. Most of the firms in the other half, however, do not look for further decrease; they merely expect a year about on a par with 1931.

During 1931, an average expectation of 25% increase in sales was converted into an average actuality of 15% decrease. This year, quite naturally, the pessimists are in the saddle. If we were to venture a prediction, we would incline to side with those who feel that the worst has been experienced, and that 1932 should average about on a par with 1931, so far as equipment sales are concerned.

Conflicting Comment on Outlook

The lack of unanimity of opinion as to the outlook is reflected in the following extracts from a few of the replies received:

✦ "I believe our business this year will show a considerable increase. This opinion is based upon impressions received during trips through the South, also upon the actual business received since Jan. 1."

✦ "While I hate to be pessimistic, I am not able to see any reason for things being any better in 1932 than they were in 1931. We will probably have to readjust our entire business on the basis of the amount we did in 1931."

✦ "We cannot help but feel that things look much brighter for we have inquiries from one end of the United States to the other, and if it were not for the foreign exchange trouble between this country and England we would feel quite sure of certain business from England."

✦ "As to the future, I very hopefully feel that the bottom has been nearly reached and better times are near at hand."

✦ "We are very satisfied with the inquiries which we have on hand for new equipment, and we look for a decided improvement in demand in the second quarter of this year."

✦ "The outlook for 1932 is somewhat vague, due to the fact that a great number of used machines have been thrown on the market, due to failures, and we look for this condition to continue for some little time to come. It is our feeling that about six months will be required before all these used machines are taken in, after which our business should begin to pick up."

✦ "As for 1932 prospects we do not believe any man's opinion is worth anything, no matter how able or experienced he may be. It all depends upon when the general mass, whose center of gravity determines the trend of business, gets over their fright. We do know that there are millions of people who are sadly in need of clothing and scores of mills that are running worn-out machinery, all of whom are really able to buy what they want, that will make business jump one of these days."

✦ "We look forward to a better business in 1932 than in 1931; we expect at least a 25% increase."

✦ "The outlook for sales in 1932 seems rather prosperous. We base this thought on the amount of business received since the middle of December, and inasmuch as there has been a steady increase since that time, we are of the candid

opinion that we are seeing the beginning of prosperity in the textile field."

Trends in Specific Industries

Among the comments referring to trends in specific divisions of the textile industry were the following:

✦ "The appalling losses shown by the cotton mills, I believe, will have a very great effect in bringing about improved methods of operation and strong sales policies, all of which tend to put them on a profitable basis."

✦ "We have not seen much to indicate improvement in many of the carpet mills but the woolen and worsted industry does seem to be coming forward much better."

✦ "It is our opinion that the hosiery mills and other textile mills are awake to their opportunity and have done a great deal of development, such as new features in construction of women's hosiery, and we feel this should be productive of increased and better-priced business for them."

✦ "I feel that not much business can be expected from new enterprises and that existing full-fashioned knitting mills will be very conservative with expansion programs until confidence in the general future outlook has been restored."

✦ "We are budgeting for 1932 a further decline of about 16⅔% for the reason that we do not anticipate the organization of any new, or the noticeable expansion of any old, hosiery mills during the year. In our judgment, it will be not less than two and possibly three or four years before the hosiery industry will recover a measure of poise."

✦ "Even a very slight but sustained improvement in the cotton textile industry will bring about a very marked improvement in the cotton mill machinery business."

✦ "There is a strengthening of the trend toward replacement of obsolete finishing equipment with new up-to-date, anti-friction bearing machinery so that goods may be processed at even higher speed than in even the immediate past. It is our opinion that within the next five years we shall see the finishing of textiles at speeds hitherto believed impossible, to those who are trying to achieve quality as well as quantity in their work, and we are trying to build our machinery accordingly."

Modernization Again Emphasized

As was true in the replies received in this survey last year, this year's comments emphasize the need for modernization in practically all branches of the industry but also point out the financial problems which have been involved. The following are representative statements:

✦ "There is a tremendous need for new machinery which will crystallize into buying as soon as the mills recover a little earning power. On the other hand, the losses of the last two years have been appalling and have depleted the current assets of most mills to a point where they cannot buy machinery even though they realize acutely their need for it. This condition will be corrected when there is some stabilization and improvement in general business and in the textile industry. As to when that improvement will come your guess is as good as mine."

✦ "There is a good demand right now for machines of improved design, as evidenced by the attention given a new machine we introduced last year. This would indicate that most business men are today willing to spend the money, providing they are convinced that the investment will give them a considerably better return than the equipment they are using at the present time."

✦ "There is a very large field for replacement of the coarser gage full-fashioned hosiery machines, which have become obsolete with the developments of the last two years. Since there is practically no choice left for manufacturers operating such antiquated equipment, but to either liquidate their business or to buy up-to-date machinery, we are looking forward to a fair volume of business from this source."

✦ "There is no doubt that many mills realize their need for modern equipment, but owing to lack of cash and uncertainty in the future, have not courage to increase their indebtedness."

Certainly, the machinery manufacturers themselves have engaged in important development work. The following comment is typical of many of the replies:

✦ "We have, during the continued quietness, taken advantage of the opportunity for research and study. New machinery has been perfected and old machinery improved and changed to meet modern conditions. With the use of higher grade materials and greater accuracy in machining methods, we have been able to materially increase operating speeds and consequently production, with no apparent detriment as to quality."

An extremely interesting comment on the question of geographical shift of the industry is the following one:

✦ "One of the remarkable trends in our sales in the last two years is the almost absolute reversal percentages sold in New England and the South. We formerly did about 20% of our total selling in the South as against 35 to 40% in New England. Last year the southern territory accounted for 35% as against 15% for New England. So far as we can see, those percentages are not going to reverse themselves again. The New England field is going to get itself back on its feet where the companies have established their cotton mills and their bleacheries as a unit. There is going to be a continual shutting down of the inefficiently run plants and finally the folks that are left are going to be able to do a good job at a good price and keep almost on an equal basis with the folks in the South. However, I look for most of the new building to be done in the South."

Finally, there is the following price plea:

✦ "The textile publications should start a campaign to stop the price-cutting of the buyers or purchasing agents. Too many are taking advantage of depressed valuation, squeezing the manufacturers to come down to a level where no one is able to make a profit; in fact, tremendous losses are sustained through the unscrupulous methods used by the purchasing departments."

Last year, TEXTILE WORLD initiated a survey of the business done in textile equipment and of outstanding trends in that phase of the industry. A similar survey has been taken this year, and the results are summarized in the accompanying article. The information on which it is based was of course submitted in confidence; consequently no references are made to individuals. It is hoped that this annual survey will supply a useful function.

Depression Continues to Stimulate Improvement in Machinery

MANY textile men have expressed surprise that there has been such a record-breaking advance in the improvement of textile machinery during the depression. These men overlook the fact that the depression—of over ten years' duration in the textile industry—is itself the major cause of the advance. It has terminated the call for the old standard lines of machines useful today mainly for expansion and has forced the equipment builders to develop new and more efficient products to replace those which they have previously sold to the mills.

Depression creates development, development produces obsolescence, obsolescence forces machinery elimination, machinery elimination brings balanced production, and balanced production destroys depression. Hence, depression is sewing the seeds of its own destruction—a fact from which we may derive encouragement.

Obsolescence is often looked upon as a condition from which no good may be expected, but in times such as this it has its advantages—at least to the industry as a whole. It may very well be the ultimate solution to our greatest problem, over-production. The more extensively that improved machinery is purchased by the mills which can afford to buy it, the more unprofitable become the unsuccessful mills. Eventually their obsolescence reaches a point at which no excuse whatever can be found for their continued operation—and they close.

For this reason and because improved machinery reduces costs, legitimately lowers selling prices, and widens markets, the industry should welcome this remarkable period of development. True, those mills which are confronted with insurmountable obstacles for meeting competition by modernization or other means can derive little satisfaction from the prospect; but their position is one in many cases which cannot be corrected, and the more quickly they liquidate the less serious will be the losses to their owners.

Hence it is important that textile executives be familiar with all improvements which may affect the processes upon which their fortunes depend. The following review should enable readers to determine whether they have kept themselves informed on the important mechanical developments of 1931.

Preparation for Spinning

Of interest in new equipment for the first operations of the mill are several machines for applying lubricating and soaking liquids to the raw stock. One of these is an emulsifying, metering, and spraying unit having a variety of such applications. Another is a rotating-bowl type of emulsifier which forces the mixture through a series of fine openings and which is introduced to textiles from another industry. New silk soaking and tinting equipment brings the solution into contact with the fiber under hydraulic pressure ranging from 10 to 15 lb., with a continuous, reversible, forced-feed circulation. The latter machine adds one more piece of equipment to a growing line of vacuum and pressure machinery promising to replace tub equipment completely.

Two new single-apron stock dryers made their appearance during the year. One is featured by the application of an individual-motor drive direct to the fan in each section, making it unnecessary to shut down the dryer for fan repairs. The other is featured by a gang of three double-width, double-inlet, curved-blade centrifugal fans in each section and by a dryer apron consisting of interlocking and interlaced, perforated, cold-rolled steel plate designed to eliminate droppings while providing free air passage.

A new bale breaker is arranged to permit instant dismounting of the doffer bonnet and convenient removal of the doffer. Another provides the option of a combing operation through the use of an auxiliary spiked roller and second upright apron.

A new step toward maintaining dust-free atmosphere in cotton opening rooms has been made in the design of a mostly-steel, ball-bearing-equipped, cleaning and blending feeder with a built-in dust exhaust fan above the hopper and a pipe leading from the fan to the dust room. In this machine the hopper rake operates an automatic feed, or a red and green signal system if feeding is by hand.

Time in doffing cotton pickers is saved and injury to the laps prevented by a new automatic release for the calender racks. To facilitate the hitching together of breaker and finisher pickers, a synchronizing mechanism has been developed which is controlled by the finisher evener, although not operated by it.

Developments for the carding process were featured by two new tape condensers for woolen. One of these is provided with deeper grooves into which lint and other waste may fall instead of getting under the tapes and stretching them and with provision for setting the eccentrics quickly and positively to graduated scale. The other condenser is designed to permit tightening of the apron without stopping the machine. In Czechoslovakia an attempt has been made to reduce the amount of stock held at the base of the card wire by the use of a polished metal surface on the clothing foundation. A new tube gear with cut peripheral teeth for the deliveries of cards and drawing frames is said to increase the amount of cotton which may be placed in the cans by more than

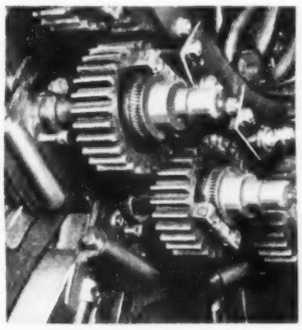
16% due to greater uniformity in the lay of the sliver.

In order that there may be an exact number of yards on the cotton-roving-frame bobbins, a system has been developed in Italy by which card sliver is wound on a sliver-lap type of spool, fed thus to the drawing frame, and run off to uniform length on the roving frames by means of yardage-controlled stop motions. To make shifting of the cone belt on roving frames for cotton more positive and rapid, a new belt guide remains at a constant distance from the surface of the cone during shifting.

Throwing and Spinning Equipment

Developments in cotton spinning were, with one exception, comparatively minor. The one exception was the compound-drafting frame introduced from Germany during the year. This is equipped with two sets of drafting rollers, of which the second may be equipped with long-drafting aprons. As drafts of from 40 to 400 are claimed to be possible, it appears that yarn may be spun direct from drawing sliver.

Developments in more familiar types of cotton-spinning machines include a clutch spindle having larger oil capacity than former models and improved circulation in the bolster without pumping and frothing; spinning rings of improved smoothness, uniformity, and durability; a roving traverse which eliminates all dwell at the reversing point; self-lubricating top-roll bushings; automatic take-up screw joints for steel spinning rolls, which prevent buckling or distortion of the rolls; and a long-drafting top middle roller, developed several years ago in England but brought to this country in 1931, consisting of a series of thin metal disks for controlling short fibers. As auxiliary equipment for the cotton-spinning room was developed a portable device for picking the accumulated lint from long-drafting rolls, cots, saddles, etc.



In a woolen mule introduced during the year from Germany a differential motion is incorporated in the tin-roller shaft in the carriage in order that the main shaft and the spindle-driving rope will rotate always in the same direction for reduced working time.

To facilitate the spinning of larger worsted-yarn packages, on a new ring frame both the ring and spindle rails are made to traverse.

In silk throwing a doubler-twister employs gears in place of all pulleys, idlers, and belts, even on the spindle drive, to provide high speed and clean yarn.

A continuous machine for imparting a curl to yarns was introduced from England.

Winding and Warp Preparation

Although no radically new winding machines made their appearance in 1931, two improved models were brought out. One is a new high-speed coner for silk and rayon of simplified construction, simplified adjustment for tension and pressure control, and accurate wind, with the mechanism inclosed where possible for clean operation and with a gravity-oiling system guarded against excessive accumulations. The other is a cone winder for cotton, woolen, and worsted and intended to prepare yarn for high-speed warping, its features including self-threading tensions and other arrangements to facilitate quick end-piecing and high speed.

In a new combination warping and gassing machine there are two flames, one above and one below the sheet of yarn, both automatically controlled through the stopping lever, and another burner which comes into action only during the short period necessary for singeing the yarn missed by the first burner during the stopping of the machine. A new gassing machine for individual yarns incloses its jets in an insulating block of fire brick in a metal case, thereby reducing heat losses.

New equipment for warp-sizing includes a cooking-kettle regulator with time control; slasher size-roll bearings made adjustable for counteracting wear; a pawl-and-ratchet attachment which permits slasher cylinders to rotate independently of the gear drive whenever the yarn pulls excessively; and a sizing machine for acetate warps having extra cylinders to provide increased drying surface in order that damaging temperatures may be avoided without losing production.

Outstanding in new warping equipment is a high-speed horizontal silk and rayon warper with numerous features, including an automatic multi-colored lighting system which shows the reason for automatic stopping of the machine. The warper employs a new over-end creel in which each cone- or spool-carrier bracket forms a complete unit with the tension device and can be shifted individually or collectively to any horizontal or vertical spacing relationship. A broken end stops the warper and lights an individual lamp on the top of the row in which the end has broken. A speed of 300 yards has been attained.

Another new horizontal warper is constructed entirely of steel. A new section-type rayon warper winds directly from the creel on to a short beam, a number of these short beams being later fed to the slasher without any separate beaming operation and therefore without holding up the work of the warper. The silk horizontal type of warper has been adapted to the rapid preparation of short warps for package dyeing, the yarn being drawn from an over-end creel. An improved brake for high-speed warpers of the cotton type is designed to stop the machine smoothly and gradually.

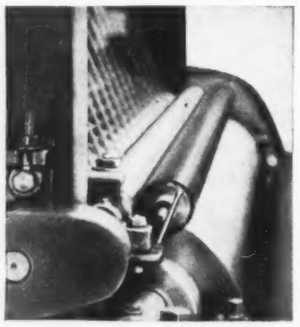
Weaving Equipment

The greatest improvement in weaving machinery was made in the silk branch of the industry, where two ingenious new looms were introduced. Among the many features of one of these machines are heavy sides ground on both faces and bored in pairs for accurate alignment of shaftings, machined surfaces on parts attached to the loom side in contact with machined pads on the latter, clutch without end thrust, brake and shipper handles at each end of loom, batwing picking shoe with long sweep giving constant acceleration to the shuttle, a loose-reed motion designed to hold the reed in place at time of picking, and dobby (readily interchangeable with cone and positive harness motions) so designed that reed is in same position relative to fell of cloth when harnesses cross on each pick.

The numerous features of the other loom include feelers and electric knock-off capable of operating on wooden quills without metallic surface, contact plungers with two continuous helical springs for use where there is danger of cut filling, driving clutch without end thrust, automatic let-off with uniform automatic tension device which eliminates manual adjustment throughout the warp, a versatile yielding reed fixed during the flight of

the shuttle and loose at the front center, and a simple and accurate timing motion for the intermittent gear box.

In Russia, a new automatic bobbin-changing silk loom has been developed, but as yet no details regarding it have reached this country. Other new looms include one for weaving paper-maker's felt, notable mainly for its great width of 540 in. between swords, and one designed by a carpet company for weaving seamless wilton carpet 18 ft. wide at a speed of about 20 picks per minute.



In the 1931 crop of new loom parts and attachments were included durable pick-cam hubs of split construction, sturdy pick shafts with steel pick-ball covers firmly fastened in place, an electrical warp stop motion utilizing alternating current with low voltages by means of individual transformers without converters or generators, a silk and rayon spring reed release motion which permits the reed to give $\frac{1}{8}$ in. or more and still maintain a set pressure at each beat-up, a steel heddle for knobby yarns with large eye turned nearly half way in the harness, a rayon reed constructed to resist acid corrosion, a vibration-operated device for holding silk or cotton ends from a bobbin-changing magazine uniformly taut, a time-saving jacquard type of pattern control for dobbies, a self-sharpening temple thread cutter of longer life, a new warp stop motion utilizing the heddles as drop wires, a new laminated reversing-grain picker stick made of hickory and veneer, harness equipment for weaving frieze fabric on single- or double-shuttle plush looms, a trip-total pick counter showing both complete and short-period productions, a new pick counter developed by a watch manufacturer, and a line of German pile wires holding replaceable blades. Jacquard weavers were interested in a new automatic design-reading machine imported from Germany for simplifying complicated card cutting. A machine designed to eliminate the process of weaving, rather than to facilitate it, produces a carpet by embedding pile fibers in a sheet of rubber.

Knitting Machinery

In the early months of 1931 a stir was caused in the full-fashioned hosiery trade by announcements that machines for knitting the legs and feet of stockings in one operation were to be placed on the market. Four such machines were announced, but only one was actually offered for early installation. Two of the other three are ready for presentation as soon as a demand for them arises, and the remaining one is still under development. Difficulties encountered in the introduction of such machines include their higher cost as compared with that of the older type and the fact that their product is not the equal of that produced by the legger and footer, although of course some of the new machines approach this ideal more closely than others. The gain in production is not so great as might at first be supposed; because, although topping is eliminated, while the machine is knitting a foot it is not knitting a leg, and vice versa.

An improved model of a full-fashioned hosiery machine divides the shafts in the center and extends their inner ends into an extra middle section which accommodates the center carrier control, electric drive, picot tackle, and French-clocking device, only the handwheel shaft, camshaft, and regulation shaft remaining coupled in the center, the objects being to improve efficiency and reduce operating troubles. On another machine fancy welts, wide-mesh nets, fancy nets, and clocks are produced by a new jacquard. A new lace attachment produces all-over lace effects, frontal and lateral clocks, or other designs knit simultaneously in different positions.

In the field of circular hosiery further recognition was given the popularity of wrap-stripe patterns in men's half hose by the introduction of a new wrap-stripe, "spiral" type machine permitting eighteen steps and an equal number of colors and employing three perpendicular color changes. The eighteen steps can be used for arrow heads on clocks, blocks, etc., or can be scattered through the stocking; and the wraps can be made of from one to twenty needles. Another fully automatic machine for half, golf, misses', and infants' hose is equipped with a wrap for each needle and employs fifteen steps for patterning, trick-wheel control, a shogging device, and a concealed wrap attachment which eliminates all vertical and horizontal inside floats.

One of the most interesting seamless-hosiery developments of the year was an attachment for producing a new type of hosiery with non-raveling picot top of the weltless type having greater elasticity of fabric and eliminating bulk when the stocking is folded at the top for length adjustment. A three-color attachment applied to spiral hosiery machines produces spiral patterns in two colors of yarn with surrounding fabric of another color, the needles passing the throat plate at three different heights and receiving a different yarn at each height. An improved circular hosiery machine introduced from England permits continuous production of half hose, golf stockings, and women's hosiery having true-ribbed tops; plain-stitched, fancy reverse-plated legs and insteps; and plain, unpatterned heels, toes, and soles.

A new multi-step ribber for producing jacquard mesh effects on a true-rib fabric is equipped with four-color yarn selector and yarn changer producing the picot edge, either self-colored or striped, and permitting twenty-five steps.

Other developments of interest to hosiery manufacturers include a new constant-level type of moistening trough for full-fashioned machines, an electrically operated stitch-expanding hosiery-inspecting machine, and a method for fusing the edges of cut-hosiery blanks produced from acetate fabric by heating the cutting edges. A new testing machine for needles and sinkers indicates very slight variations.

A new circular machine of the single- or flat-stitch jacquard type produces lace effects on the eyelet principle with the figures running straight across the fabric without spiraling with the courses, figures being eliminated from sequence at the will of the designer. Two new six-feed latch-needle outerwear ribbers automatically knit a 2x2 bottom on a 1x1 body, making a combination rack and welt edge or providing a racked self-edge and draw thread. One of these six-feed ribbers has six two-color yarn stripers with provision for throwing any striper finger out of action without affecting the others and may be equipped with a jacquard attachment having individual-needle control. It is also provided with a two-speed automatically controlled drive, which permits high production when changes are not being made.

Other knitting-mill equipment includes a flat-bed sewing machine designed for speeds as high as 4,200 r.p.m., a twin-needle sewing machine for bathing suits equipped

with a folding attachment controlled by the operator's knee, a needle guard to protect the fingers, a thread-cone holder designed to prevent thread from falling and breaking during sewing, a simplified over-edging machine, and a simple unraveling device for circular-knitted fabric.

Bleaching, Dyeing, and Finishing

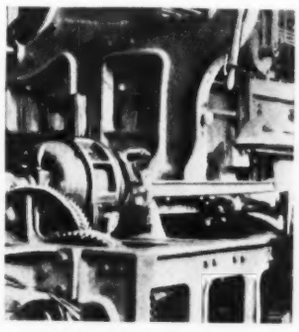
An important addition to peroxide-bleaching equipment is a pressure-circulation kier with a triple flow; i.e., a vertical flow down through the material, a horizontal flow from the center of the kier toward the sides, and a flow from the sides toward the center.

One of the outstandingly novel pieces of equipment introduced to the textile industry in 1931 is the new skein-dyeing machine which circulates the liquor from the tank up through a perforated arm supporting the skeins, allowing the liquor to flow over and through the skeins back to the tank—the entire bath passing through the yarn under low pressure once every minute. Another skein-dyeing machine of a more familiar type embodies independently controlled reels operated in a manner designed to eliminate tension on the skein. Both of these machines are said to be particularly applicable to vat dyeing.

For piece dyeing two all-metal dye kettles made their appearance, one employing a nickel-clad steel and the other an 18-8 stainless alloy. In a semi-open-width machine designed especially for dyeing heavy silk fabrics, the cloth is threaded in a figure-of-eight pattern to reduce tension and the danger of chafe marks. For hosiery dyeing a new Monel-metal paddle dyeing machine with aluminum frames was brought out. A portable feeding device for dyestuffs consists of a Monel-metal container fitted with an outlet tube and control valve.

A new gear system for textile printing machines permits the maintenance of correct mesh when print rollers are changed for size and eliminates handling of the star gears.

New washers include a full-width print type equipped with an individual direct-connected motor control at each nip, providing accurate control over the tension; a line of slackloop and tight-strand bleach-house and printworks washers designed on the counter-current flow principle; and an improved cloth washer, particularly applicable to wool and knitting mills, with the tub shaped to permit better opening of the cloth.



New finishing machinery particularly suitable for knit goods includes a continuous vacuum extractor for tubular fabric equipped with a propeller spreader; a new processing machine also for tubular fabric, embodying a propeller spreader and employing a padding action for uniformly impregnating a wide range of fabrics (used for the adulteration of rayon goods by weighting); a finishing machine for worsted tubular fabric, which sponges, shrinks, and then presses the goods under hot paper; and an improved steaming and finishing machine for tubular rayon fabrics equipped with cooling blower.

Two improved continuous cloth-carbonizing units were introduced to the wool trade during the year. One features accurately controlled operation from acid tank to dryer discharge, a new tank which can be repaired or replaced without disturbing the top or squeeze rolls, and ready access to the cloth on both sides of the dryer. The other features a Monel-metal sub-ceiling in its drying and carbonizing chamber to prevent condensation dripping on the goods and also greater compactness obtained by placing the steam coils underneath the cloth.

Three new agers were brought out during the year. The new features which they offer include a preheating chamber, lips at various points and steam-jacketed entering and leaving slots for catching or avoiding condensation, and outboard carrier-roll anti-friction bearings.

A shear for removing loose threads from the face, back, and selvages of cotton, rayon, silk, and mixed fabrics has been equipped with a new seam protector which automatically adjusts itself to the speed of the cloth. A machine for improving the appearance and handle of rayon fabric permeates the material with steam and then cools the fabric by forcing air through it. Finishers have evinced interest in a new singer employing liquefied petroleum gases on the flame-compression principle, which consists of liberating a combustible air-gas mixture in a confined space.

New drying equipment includes a portable extractor which may be loaded, operated, and emptied rapidly, an all-metal cross-draft wool tenter which may be operated at high speed and tended by only one operative, a new silk-tenter clip which lifts its gate vertically to avoid clip marks when the goods are released at the delivery end, a silk dryer for use in range with silk-printing machines heated by means of exterior unit heaters, a combination loop dryer and impregnating tank for asbestos fabrics, a compact and simply constructed hosiery dryer, and a line of hosiery metal drying forms with adjustments for various sizes of leg as well as toe.

A machine for restoring the normal moisture content of fabrics which have been subjected to presses, dryers, and calenders employs cool air currents thoroughly saturated with water vapor. A new cloth-shrinking machine festoons the fabric automatically, exposing it to surrounding atmospheric conditions without employing heat or air circulation. Palmers with electric heating elements for shrinking the filling have been applied to Sanforizing ranges.

Three new examining and measuring machines are featured by variable-speed drives and provision for conveniently reversing the direction of the cloth. Other equipment of interest to bleachers, dyers, and finishers includes new graduated feeding devices for liquids; new mixers; and tanks, containers, rolls, and other corrosion-exposed equipment made of a new acid-proof ceramic material.

The year produced the following testing equipment: an improved optical instrument for measuring fiber diameter, a new portable instrument for measuring the air-permeability of fabrics, an electric gage for fabric thickness, an instrument for testing the wear resistance of carpets, an abrasion tester for a variety of fabrics, a set of alignment pins for the fabric jaws of vertical tensile-testing machines, a new slide comparator for colorimetric pH control, a slide colorimeter for determining the available chlorine in solutions, a wide-field magnification tube for fabrics, a microscope designed specially as a basic instrument for textile work, a textile projector for the examination of woven and knitted fabrics, a textile mount for the simple microscopic examination of yarns and fabrics to be viewed without tension and distortion, and a new micrometer microscope for particularly accurate work.

Lower Costs Now the Goal

in Power Generation and Engineering

NEVER before in the history of the textile industry has the need for efficiency in operation of all departments been so great and so vital. When we consider the power plant itself and the consumption of steam and power in the mill, we find two major lines of endeavor along which tremendous savings can be made. First is the production in the power plant of the same amount of steam with less fuel; and second is the reduction of steam and power consumption in the mill for the same amount of textile product.

Metered combustion control probably offers the greatest opportunity in the power plant for attaining higher efficiencies, and consequently we find that during the last year the use of such equipment has largley increased. Metered combustion control accomplishes two major objects, one is the continuous regulation of the proper amount of air required for most efficient combustion at all rates of steam flow, and the other is the production of a chart record at all times of just what are the operating conditions in the furnace. Thus a chief engineer on day duty can tell by the inspection of the previous night's chart if the proper furnace conditions have been maintained during the night.

In the mill the employment of byproduct steam and hot water for processing, increased use of heat exchangers, and recovery and utilization of waste heat have accomplished wonders in lowering manufacturing costs. Bled steam, of both high and low pressure, is now being taken from the turbines and used for manufacturing processes, while condensing water at any desired temperature within certain limits can be sent out from the power plant to the mill for similar use.

It is now recognized that in addition to scale, mud and suspended matter in boiler feed water may cause low evaporative efficiencies by reason of deposits within the tubes and drums. We find, therefore, more attention being given to the mechanical filtration of boiler water in addition to the usual scale-prevention treatment. Further research is being carried on with the idea of a more accurate determination of the proper sulfate to carbonate ratio to prevent caustic embrittlement. In the meantime, wherever filtered water has been used for boiler feed and systematic treatment employed, beneficial results have been obtained in the form of higher evaporative factors, cleaner boiler surfaces, and fewer bagged tubes and leaky girth seams.

Early in December press dispatches announced that patents had been taken out in Germany covering a process and device for preventing the formation of scale in boilers. The tubes and outside walls are made of steels having different electrical potentials so that an electrical current is set up which prevents the formation of scale. The point involved is surely an interesting one if it is proved that the process functions without injury to the metal.

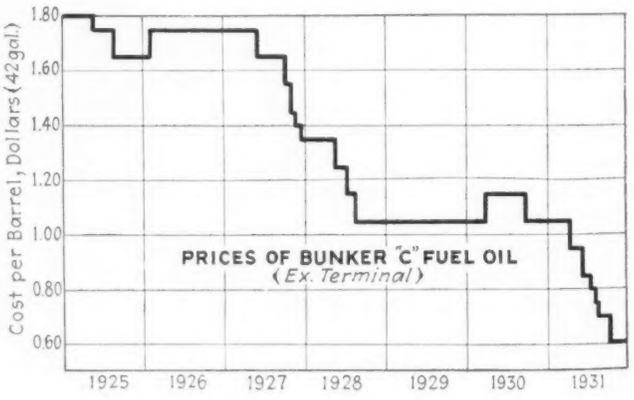
Welded Boiler Construction

As predicted in former reviews, the fusion-welded boiler drum is now accepted as standard construction by the boiler insurance companies, and the A.S.M.E. has formulated a code in accordance with which such construction is being carried on. One larger boiler manufacturing company has already delivered or has under construction a total of 150 welded drums for pressures ranging from 150 to 500 lb. Elaborate X-ray equipment has been installed for testing the soundness of the welds, and thus the work is guaranteed. The coming year will no doubt see a greatly increased production of welded drum boilers.

Higher boiler pressures and higher steam temperatures are finding greater use; and boilers and turbines are being installed to meet these conditions.

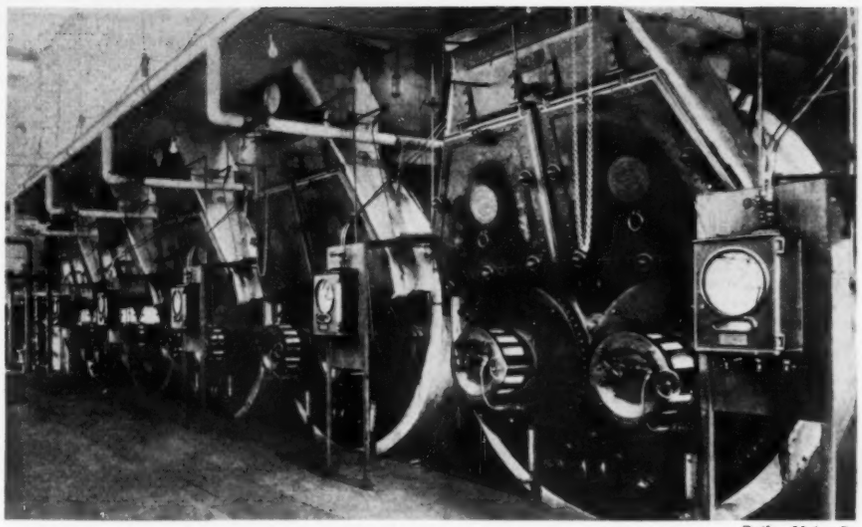
Welded joints and connections for power plant and main steam lines are being more widely used in place of flanged-type construction. Greater permanency, elimination of flanged joints with their opportunities for leakage, and more satisfactory results throughout are among the advantages of welded construction. Pipe bends of any length and curvature can now be obtained ready for the welder. Nipples of any length with one end formed for welding and the other threaded for screw connection are also obtainable. Where side connections are to be made to existing lines, the welded type of joint facilitates the speed and lessens the cost.

Whereas in the past it has been necessary in equipping a boiler plant to purchase the various units which go to make up the complete plant from as many different companies, since one company built but one type of equipment, it is now possible to obtain the entire outfit



Prices of bunker oil charted for seven-year period

from one company. Thus we find that there are several firms which can supply boilers, superheaters, waterwalls, air preheaters, economizers, feed-water heaters, deaërators, stokers, pulverized coal burners, oil burners, combustion-control apparatus, and feed pumps. This development has many possible advantages, and will be watched with interest by engineers.



Bailey Meter Co.

Metered combustion control permits higher efficiencies in the boiler room

Mud-Drum Inspection

A recent ruling of one of the larger boiler inspection and insurance companies is of vital interest to all owners of boilers of the type having a mud drum with ends inclosed in brickwork setting. Ordinarily these drum ends are not available for inspection, and in the past there have been disastrous explosions resulting from the unseen and therefore unknown corrosion of these ends. These explosions have usually occurred in boilers that had been in service for a considerable time, which is liable to be the case in textile mills. This insurance company is therefore requesting that at the time of the annual boiler inspection the mud drums be uncovered so that the heads can be examined for possible corrosion and consequent weakness.

A few years ago we were told that the nation's oil reserves would soon reach the point of exhaustion, or at least come to the point where oil should be held for government use only. As a result there was a slackening in the rush to change from coal to oil. Developments during the last year in which oil producers have been compelled to stop producing and the drop in price of fuel oil has brought it to the lowest figure in history, have completely reversed the situation. But on the other hand, this situation has greatly benefited the coal user by forcing the price of coal to low levels. It must be recognized that oil prices are at present abnormal and must increase before long. The question of what type of boiler to install is not one that can be decided on present fuel prices alone without looking far ahead and carefully considering all phases of the matter. The accompanying chart shows how the price of bunker oil has dropped since 1925.

At the Third International Conference on Bituminous Coal, held in November, several interesting points were brought to notice. One was the tremendous falling-off in consumption as compared with former years. Some 40,000,000 tons of this drop was estimated to be due to greater operating efficiencies in industrial plants alone, and textile plants have had a part in this saving. Change from coal to oil and natural gas has also accounted for a considerable part. The intense competition of oil and the drop in consumption has brought about another saving to the coal user. Whatever be the cause, results have been beneficial to the consumer.

An interesting point in connection with coal-using plants is the fact that many mills which formerly carried thousands of tons of coal in storage now have their coal delivered by truck daily as used. Several advantages are thus obtained. Coal in storage, particularly slack which is now being used to great extent, accumulates high percentages of moisture in the form of rain, snow, and ice, which absorb heat in the furnace and in excessive amounts give trouble in the furnaces. Large amounts of capital are tied up in stored coal and handling charges are increased. By the use of daily delivered coal all of these objectionable features are eliminated.

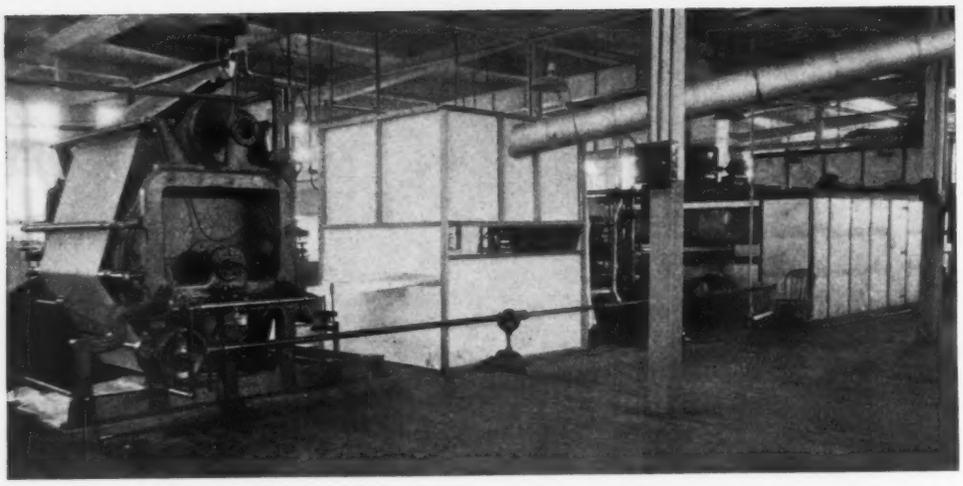
Stainless Metals

One of the most notable advances in textile engineering during 1931 was the increased demand for the so-called 18-8, chrome-nickel steels. This material is being manufactured by many of the major steel companies in the form of sheets, bars, flats, rounds, wire, pipe, and tubing; and is finding use in all these forms in the manufacture of textile machinery, principally that employed in dyeing and finishing operations. Its marked advantages are its stainless qualities; resistance to corrosion and attack by the general run of chemicals used in textile processes; and the ease with which tanks, tubs, vats, and kettles can be cleaned. In some cases the stainless or chrome irons without any nickel content can be used with equally satisfactory results and at considerably less expense.

Two principal drawbacks which have limited to some extent the wider use of these steels are delay in deliveries from the mills and foundries and the difficulty experienced in machining and working the various forms. Both of these difficulties are being overcome, and we predict that 1932 will see a marked increase in the application in textile mills of chrome irons and chrome-nickel steels.

Thyratron Tubes

One development cited early in the year at the Midwest Power Engineering Conference and which is yet the subject of intensive research, is the application of the "Thyratron" or three-element, mercury-vapor vacuum tube to heavy-duty power-transmission service. This tube operating at high efficiency will convert alternating current to direct current and reverse. If such application is successful, many advantages will be obtained. In direct-current systems generator sizes and therefore costs can be reduced, parallel operation would be controlled simply by voltages, synchronizing and power-factor troubles would disappear, and current could be transmitted over longer distances than is now practical with alternating current.



Improved preshrinking methods have been adopted by many cotton finishers

Rule-of-Thumb Methods Doomed by Steady Progress in Processing Cotton, Wool, and Silk

TWELVE months ago we wrote: "Progress in wet processing during the last year is especially notable because of the marked tendency to replace rule-of-thumb methods with those based on sound, underlying principles." Later in the spring a prominent textile executive said: "The textile industry as a whole is well advanced mechanically, but by no means is this true chemically, or from the viewpoint of the chemical engineer. Rule-of-thumb methods prevail very largely—." Although these two statements may at first thought seem to be contradictory, both are true. In 1930, and again in 1931, there has been steady progress in substituting scientific procedure for empirical methods. Nevertheless a vast amount of study and work is still necessary before the processing branches of the textile industry can hope to rid themselves completely of the encumbrances entailed by rule-of-thumb methods.

Before we proceed to a brief review of the outstanding improvements made during the last year in processing cotton, wool, and silk it may be well, therefore, to glance at some of the major problems which various authorities declare must be solved if the industry is to be placed on a truly scientific basis. These are as follows:

1. Present methods of boiling off and bleaching cotton are both time-consuming and costly; knowledge is lacking as to the reactions which occur in the kier; a continuous bleaching process applicable to a wide range of materials is most desirable.

2. Until recently practically no thought was given to fundamentals of the silk-soaking process, and as a result there is scarcely any real information on this subject.

3. Many chances for improvement are offered in wool scouring; and development of useful byproducts from the 150,000,000 lb. or more of wool-scouring residues which now go to waste annually is well worth investigation.

4. With few exceptions in the case of warps and piece goods, the time cycle of most dyeing operations should be speeded up; continuous dyeing processes for raw stock and yarns would result in large economies; these, no doubt, will follow a clearer conception of the physical and chemical laws which prevail in the application of various classes of dyestuffs.

5. The unnecessary heat losses in textile dyeing and finishing plants are appalling; economies which could be effected in heating of dyebaths and other solutions, in drying of textiles in various forms, and in readjustment of the load on the steam plant would more than pay for any efforts expended.

6. Finishing operations as now performed, even in the more progressive plants, often are without rime or reason; only the haziest of ideas are held as to the real function of sizing, softening, and the mechanical treatments to which fabrics are subjected; the reason for any difference in action between two varieties of starch, for example, is a profound mystery; not only is there need for a better understanding of the finishing processes commonly employed at present, but there is unlimited opportunity for the development of new finishes which would add to the appearance, serviceability, and adaptability of textile materials.

It is unecessary to list other of the fields for study. Nor is this the time to discuss in detail the way in which the problems should be attacked; obviously, some of the work can best be done by the individual mills, while the rest requires cooperative effort and research. That textile executives are coming more and more to a realization of the need for basic improvements in the processing industry and are making steady progress in this direction

are shown by a summary of the more important developments which have taken place in the last year.

Cotton Finishing

In cotton finishing, increasing interest has been displayed in preshrinking woven fabrics and in the broadened applications for peroxide bleaching. Improved equipment which permits controlled preshrinkage of both warp and filling has been installed in several finishing plants, and preshrinking methods formerly used largely on shirtings are now being used for the treatment of dress goods, overall fabrics, ducks, uniform cloths, and other materials. For several years peroxide bleaching of cotton has steadily grown in importance, and recently development of a triple-flow circulation kier designed to give large capacity, uniformity of treatment, and economy of operation has further aided this process.

Demand for fast-dyed yarns and fabrics continues unabated, and the search for better methods for dyeing vat and naphthol colors is constant. A unique skein dyeing machine particularly recommended for the application of vat colors and designed to prevent premature oxidization of the dyestuff has been greeted with interest. More recently the present writer has suggested an improved type of piece-dyeing equipment which, it is believed, will insure good penetration and maximum color value in dyeing with vat, naphthol, and other classes of dyestuffs.

Commercial production of liquefied petroleum gas has made available a new source of fuel for singeing, gassing, calendering, and tentering. This development has proved particularly interesting to textile mills located in isolated regions where public-utility-manufactured or natural gas lines are inaccessible. Other innovations in cotton processing include flame-compression singeing of piece goods and yarn gassing under controlled temperature conditions.

For many years few basic improvements were made in textile printing methods. Today, however, radical innovations seem imminent. As is stated in our review of rayon developments, few details of these impending changes have as yet been made public, although mention may be made of the increased interest in photographic methods of engraving printing rolls, and of a new photographic method of printing textiles which eliminates the necessity for rollers, screens, and blocks, the material being impregnated with a sensitizing solution and used as a film to receive the printing. Thought is now being given to control of tension in washing and drying printed goods and a number of print works have installed machines which permit controlled stretch or shrinkage of the fabric in these processes.

Woolen and Worsted Processing

It is apparent that new and improved equipment developed by the various machinery builders—often in cooperation with the leading textile mills—is responsible for many of the improvements in processing. In finishing woolens and worsteds this influence is particularly marked. For many years admittedly a stickler for traditional methods, the wool-finishing division recently has made noteworthy strides. The trend towards continuous carbonization of piece goods noted in previous reviews continues, and improved equipment has been designed to give increased production with lower costs for labor, chemicals, and steam. The time required for fulling has been reduced by installation of improved equipment, and at the same time, better mechancial control of shrinkage and ready means of duplicating any desired results have been attained. In drying raw stock and piece goods, higher drying speeds and large savings in steam have been effected by redesigning of dryers.

Dyers and finishers of piece goods are coming to realize the need of proper departmental and plant layout and replacement of obsolete equipment. As a result, installation of modern machinery and complete plant reorganization to give straight-line flow of production is receiving greater attention than at any time in the past. One of the outstanding developments in wool dyeing is the rapidly increasing use of stainless steel and other corrosion-resisting materials in dyeing equipment.

Improvements in Processing Silk

Recently a new method of silk soaking, making use of forced-feed circulation, has been adopted by several of the leading throwsters. This process—since it eliminates the need for overnight soaking and enables around 90% exhaustion of the solution—bids fair to supersede entirely the time-honored method of soaking in open tubs. A pre-soaking treatment with saponified, sulfonated oil has been suggested for improving the winding qualities of Canton silk.

Research conducted on degumming of silk has established the fact that an alkaline boil-off bath to be suitable should be maintained at a pH of 10 to 10.5 At present the possibility of employing enzymes for degumming is receiving the attention of investigators.

In processing hosiery and other types of knit goods the one-bath method of scouring (or degumming) and dyeing is constantly gaining advocates. Degumming, bleaching, and dyeing of silk piece goods and mixture fabrics in one bath is also made possible with a process introduced within the year. In this process the fabric is loaded into a reel dyeing machine, and the entire operation takes place in the same bath; in-between rinses are eliminated, and no handling is required until the goods are ready to be unloaded ready for extracting.

Improvement in finishing of tubular knit goods has been made by the installation of a unique type of equipment which opens the fabric and by means of an ingenious arrangement propels it at any desired tubular dimension through the various finishing solutions. Another finishing process for tubular knit goods combines sponging, shrinking, and pressing in one operation.

In dyeing acid colors in an acidified gum-soap bath

Woolen and worsted finishing plants have been reorganized to give straight-line flow of production

considerable difficulty has been experienced in that the emulsion was unstable, resulting in a so-called "broken soap bath," which rendered the silk greasy and unfit for finishing without cleaning and redyeing. It has been found recently that the only precaution which is necessary to prevent breaking down of the emulsion is to have the acid sufficiently strong enough so that the pH of the dye liquor is well below 4. The vat colors are attaining prominence for dyeing silk when good fastness to both light and washing is required. Several processes have been developed to avoid damage to the silk by the alkaline bath ordinarily employed in vat dyeing; but more work is needed along this line.

Brief reports of a continuous silk-weighting process employed in Switzerland aroused considerable interest in this country, and late in the fall a more detailed description of this method was published in an issue of TEXTILE WORLD.

So far as can be ascertained, this process has not yet been adopted by American tin weighters, although it apparently possesses advantages over the methods now commonly used. Recovery of tin-bearing wastes is receiving more careful attention in the silk-weighting establishments, and recently some of the more progressive firms have installed mechanically operated continuous recovery systems which are said to give a tin recovery of 97 to 98% and to cost only about one-third as much to operate as do the older intermittent, manually operated systems.

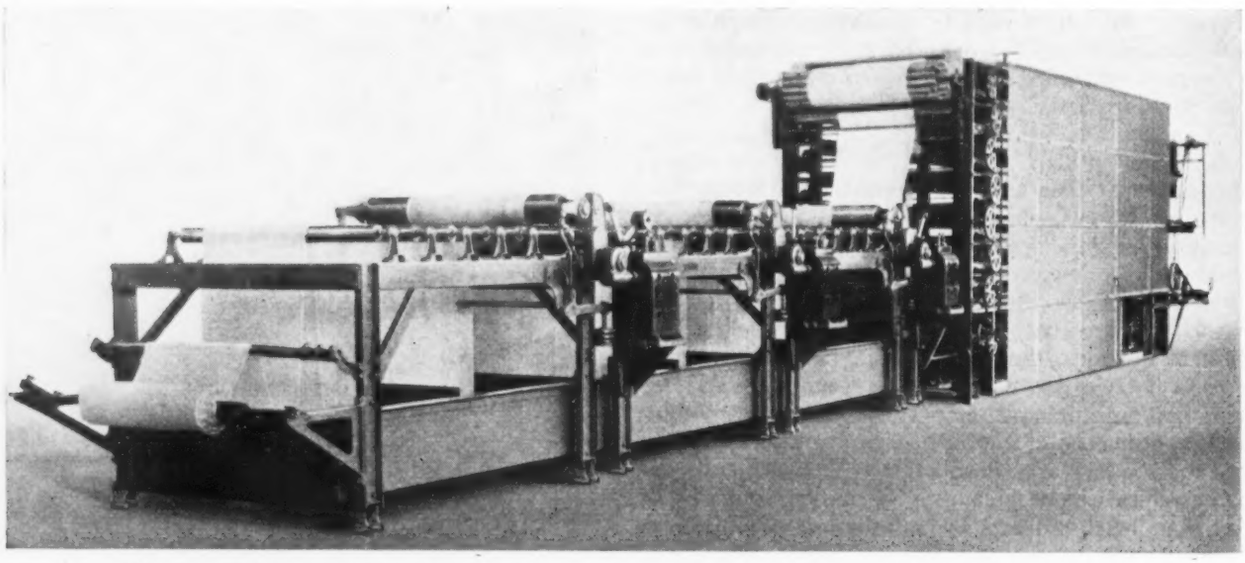
Finishing Compounds

During the last year the usual large number of wetting agents, dye assistants, finishing and proofing compounds, and other products were brought out. Of equal importance are one or two new applications of materials which have been available for a longer period. Particularly significant in this latter connection is the interest now being displayed in the use of organic solvents, either alone or in conjunction with other chemicals. Thus we find mills turning to dry-cleaning methods for removing oils, stains, pitch, and other impurities from textiles; and on the other hand, we see solvents being incorporated with scouring solutions of various compositions to increase their detergent properties. Another development is the use of synthetic organic chemicals in the lubrication of raw stock intended for the manufacture of woolens and worsteds.

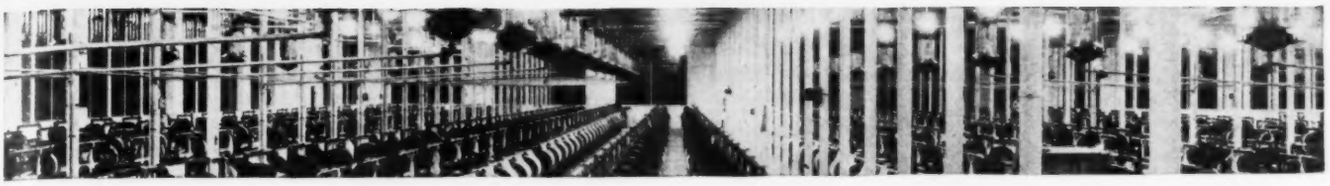
Among the newer compounds are included several types of water-soluble, self-emulsifying soaking oils; a transparent degumming agent containing no excess alkali; a three-fiber boil-off for use in scouring combination fabrics; and wetting agents prepared from rosin. Other materials of interest are a light-colored sulfonated oil made by a special process, and especially recommended for use on fabrics dyed in light or brilliant shades; a foam-preventing agent to be added to printing pastes; synthetic resins suitable for coating fabrics; and a dyeing assistant for use in applying naphthol colors. There have been introduced also three new aromatics for textiles, a scouring agent of entirely different composition from soap, several improved printing gums, emulsifying agents of various types, a waterproofing compound applied by the one-bath method, and a host of finishing materials to meet particular requirements.

Textile Research

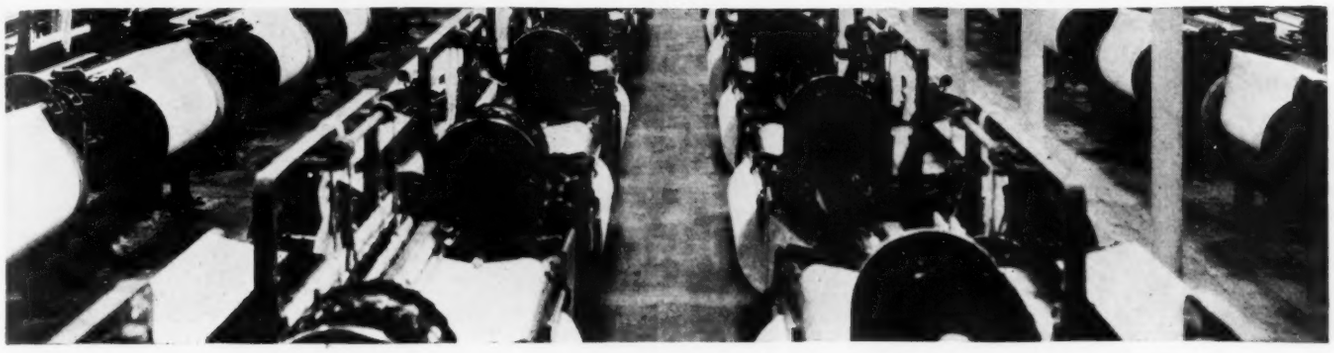
Textile chemists have been active in developing simplified or improved methods for analyzing raw materials, testing the fastness characteristics of dyed fabrics, for determining the physical and chemical properties of finished fabrics, and to enable more accurate control of wet-processing operations. There has been suggested in TEXTILE WORLD a method for the analysis of sulfonated oils which is offered as a basis for a standard method to be adopted by textile chemists, and a procedure for the evaluation of soluble silk-soaking oils. Also were described simple tests to enable accurate control of the vat-dyeing process, to determine the substantivity of dyes, and for securing uniform results in the mercerization of cotton piece goods. Improved apparatus for pH and chlorine control have been developed in recent months. Finally should be mentioned the excellent work which is being done by the various research committees of the American Association of Textile Chemists and Colorists, in the development of fastness tests for dyed fabrics and the work of the research associates of that association in studying the fundamental properties of the wool fiber with the object in view of correlating these with the commercial methods of wool processing, and in investigating the action of light on silk.



In washing and drying silk prints the importance of controlled tension is becoming better realized



TRENDS IN MILL MODERNIZATION



Where Modernization Will Pay,

as Seen by Leading Engineers

Compared with other means of departing from present conditions of overproduction, modernization resembles a high-powered speed boat. Like such a boat, it is expensive and can be purchased only by those in at least a fair financial condition. Mills in such condition today are in general the more efficient in the industry. Those concerns which invest in modernization, like those individuals who buy high-powered boats, can pull away from their weaker and less efficient competitors. Of greater consequence become the open seams and missing cylinders of the latter contestants, and they drop from the race.

OVERPRODUCTION in many lines of textile products was the subject of considerable talk even before the recent economic depression visited the land. The decline in consumption of textiles during the last two years merely added dramatic emphasis to the presence of this more or less chronic situation. Obviously, during this period there has been little reason for the construction of additional new textile mills, except in rare cases; but existing plants are confronted with the increasingly urgent problem of modernization.

The general subject of textile-mill modernization may be divided into two classifications: replacement of obsolete machinery and other production facilities, and the improvement of methods in handling productive equipment and labor. The results obtained by modernization of methods are not so apparent to the casual observer in a mill, of course, as those of a broad machinery-replacement program; but intelligent modernization in either direction is invariably reflected in the profit-and-loss statement of the textile manufacturer.

Must Reduce Costs

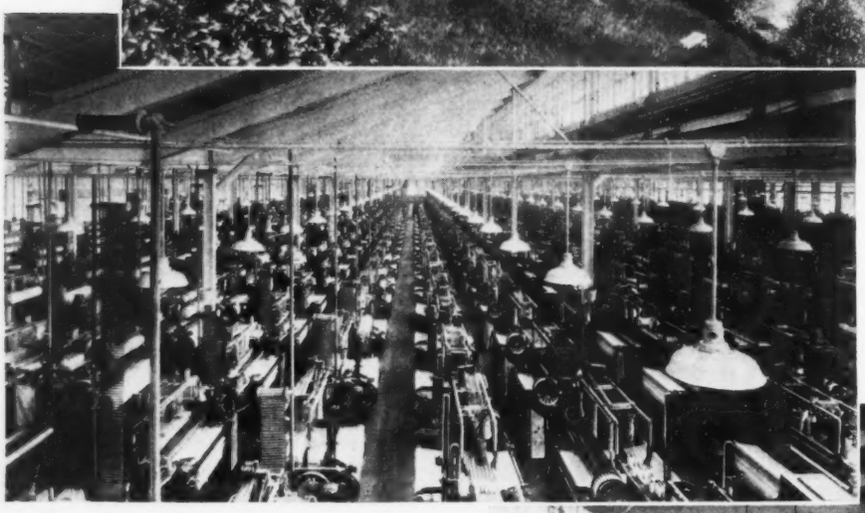
"The bitter price competition existing in all textile markets makes it incumbent on manufacturers to use every means for reducing their production costs," according to C. L. Emerson, vice-president of Robert & Co., Atlanta, Ga., one of several leading engineers cooperating with TEXTILE WORLD in the preparation of this composite article. "Foremost among these means for reducing the costs of production," Mr. Emerson continues, "must come modernization of the plant."

"While there are individual plants which have made improvements, and others which may be contemplating them," according to F. M. Gunby, of Chas. T. Main, Inc., Boston, Mass., "activity in the various branches of the textile industry during the last few years as regards spending money for improvements has been at a low stage. With the price depression, the reason is apparent.

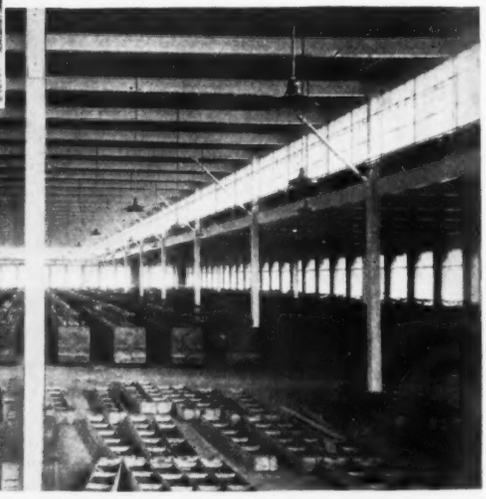
"One of the important tendencies apparent a year or so ago was concentration of the industry into fewer and larger and better-managed units. It is to be hoped that this tendency will revive and perform a much-needed service.

"A second feature of developments in the last few

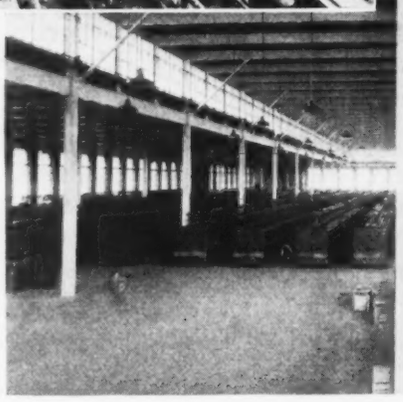
Above — Extension to Sayles Finishing Plants, Inc., Saylesville, R. I., for increased capacity and more efficient layout.



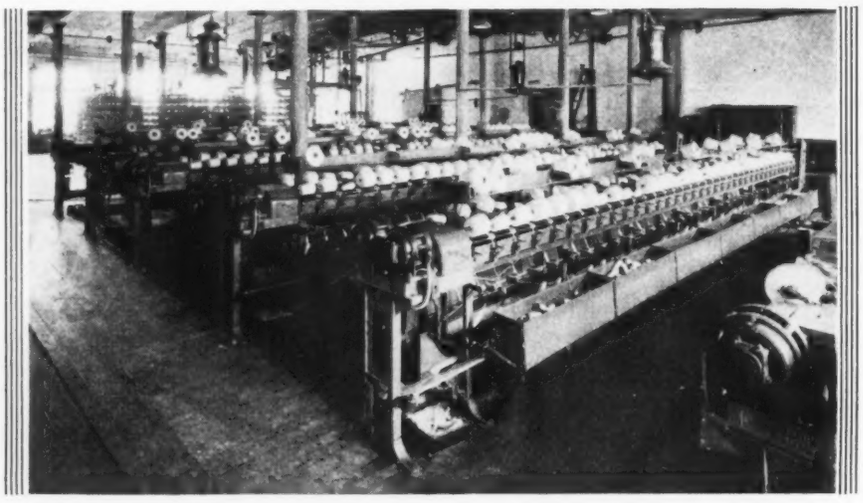
Below—Spinning machinery being installed at Joanna Cotton Mills, Goldville, S. C., one of the newer southern plants.



Above — Modern, well-lighted weave shed of Drayton mills, Spartanburg, S. C., containing 1,632 individual-motor-driven looms. (First three photos supplied by Lockwood Greene Engineers, Inc.)



Below—Six rotary-guide high-speed winders replacing old-type spoolers in the American Spinning Co., Greenville, S. C. (Universal Winding Co. photo)



years has been the decrease in number of cotton spindles in the industry. During the last six or eight years the total spindles in the country has decreased by about five million, and this change is still in progress. Most of this machinery was obsolete. A marked development of the last year or two is the collapse of the market for second-hand machinery of appreciable age or of design bordering on the obsolete.

"Reports from England are that a group of her mills propose to buy up and scrap about 10,000,000 spindles. There is food for thought for us in this procedure. Many more of our spindles and mills must be scrapped.

"Another development is the collapse of the market for mill buildings which have been left vacant by liquidation of textile mills. It is becoming apparent that many of these plants will not be re-absorbed into industry for use in other lines. It is frequently shown that it is better for a plant to pay present-day prices to build the additional space it needs, located where and how it wants it, than to buy one of these old buildings for an extremely low price and accept the handicap of higher operating costs for years to come. It is sometimes better to tear down or to give away such buildings than to hang onto them and pay the carrying charges and taxes.

"We Americans have never hesitated to scrap machinery and replace it with more efficient equipment as it appeared," Mr. Gunby continues. "We have, however, been much more backward in doing this for buildings, seeming to have retained our old-world respect for bricks and mortar. The competition of the future seems to hold out little hope for this kind of thinking. The whole modern plant is a machine, and no part of it should be regarded as holy and unchangeable merely because it is still good physically.

"The present depression is bringing to the foreground the necessity of studying and improving the efficiency of all phases of the plant, such as merchandising, handling of personnel, processes, product, power, steam, fuel, etc. The lack of funds in most cases makes such studies both harder and more interesting. Two important factors in such studies are (1) specific knowledge and (2) point of view; and the lack of either may thwart the purpose of the study. The active cooperation of an outside engineering staff with that of the plant insures both of these features."

No Part of Mill Is Sacred or Unchangeable

Important tendencies apparent in the last few years have been a decrease in the number of spindles in the industry, collapse of the market for second-hand machinery of appreciable age or of obsolete design, and a similar collapse of the market for old mill buildings that have been left vacant by textile-mill liquidation. The whole modern plant is a machine, and no part of it should be regarded as sacred and unchangeable merely because it is in good physical condition. The present depression is bringing to the foreground the necessity of studying and improving the efficiency of all phases of the textile plant, such as merchandising, handling of personnel, processes, product, power, steam, fuel, etc. Two important factors in such studies are: specific knowledge and point of view.

—F. M. GUNBY
CHAS. T. MAIN, INC.,
BOSTON, MASS

Work for Quiet Times

In reply to a question as to what independent engineering organizations, or textile-mill engineers, can do in quiet times to improve the efficiency of textile producing units, W. A. Lang, of Lockwood Greene Engineers, Inc., with offices in New York, Boston, and Spartanburg, say:

"Textile mills in general can do a great many things to bring their existing plants and equipment up-to-date and in that way improve manufacturing efficiency. Any modernization program, however, should not be haphazard, but carefully planned. A mill audit, or survey, made by a competent engineering organization will disclose the particular conditions which call for correction in any individual plant. Check-ups made at intervals of approximately two years will insure that the program is being followed. An audit discloses the major needs of the mill from the standpoint of labor, production, and selling. So far as modernization is concerned, a check-up by the engineering organization will show the actual condition of the mill as compared with a similar plant of the most modern type. In this way a definite plan for modernization can be laid out and followed."

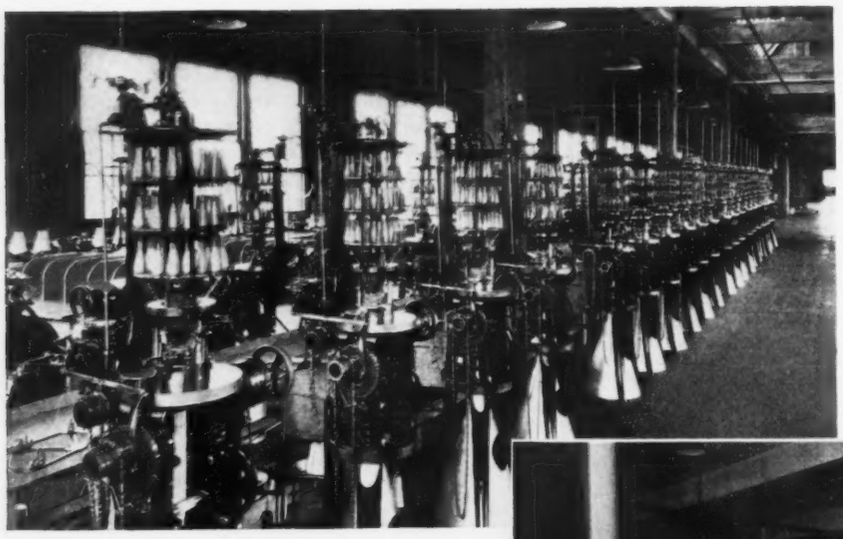
Discussing somewhat the same question, C. L. Emerson offers the following opinion: "While mills are running at part capacity, time is available to study most minutely all the improvements which might be made to reduce manufacturing costs. The calculations and drawings on which such investigations are based cost very little and, even though the improvements decided upon may not be undertaken at once, the management has obtained a clear picture of the plant's defects and the method and cost of remedying them. When business improves, the actual work can be instituted without the usual delay."

Changes in Buildings

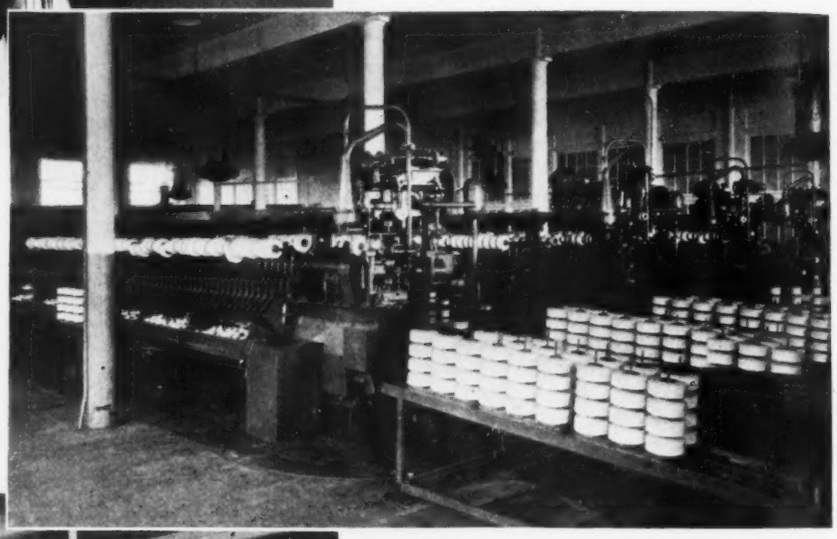
One of the questions asked engineering firms contributing to this article was: What changes can textile manufacturers make in their *existing* buildings to improve manufacturing efficiency? In discussing this question, C. L. Emerson offers the following opinion:

"In the modernization work with which our company has been connected during the last two years, every effort has been made to make use of existing buildings and thus restrict the investment in new brick and mortar to the lowest possible amount, if it could not be entirely eliminated.

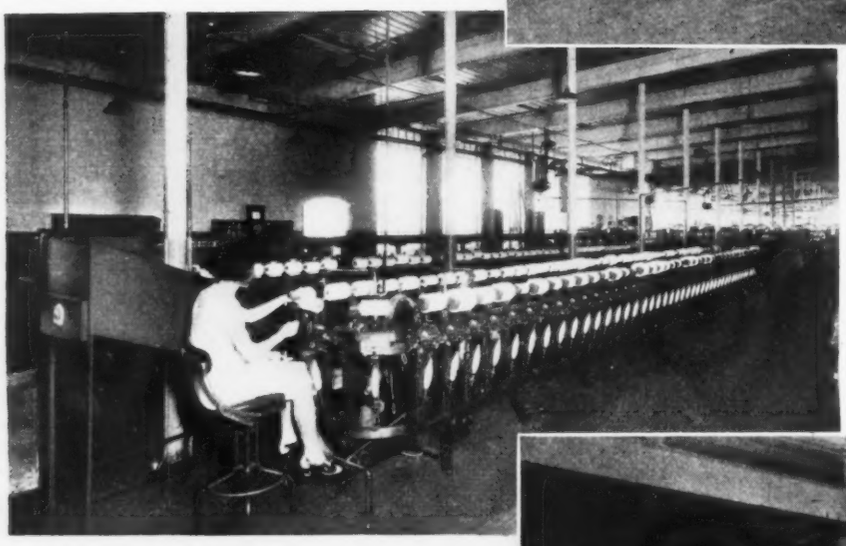
"Many large plants have the same process carried on in several different locations. There may be two or three entirely independent weave rooms or spinning rooms. Where possible, these should be consolidated. At the Exposition Cotton Mills, Atlanta, Ga., three weave



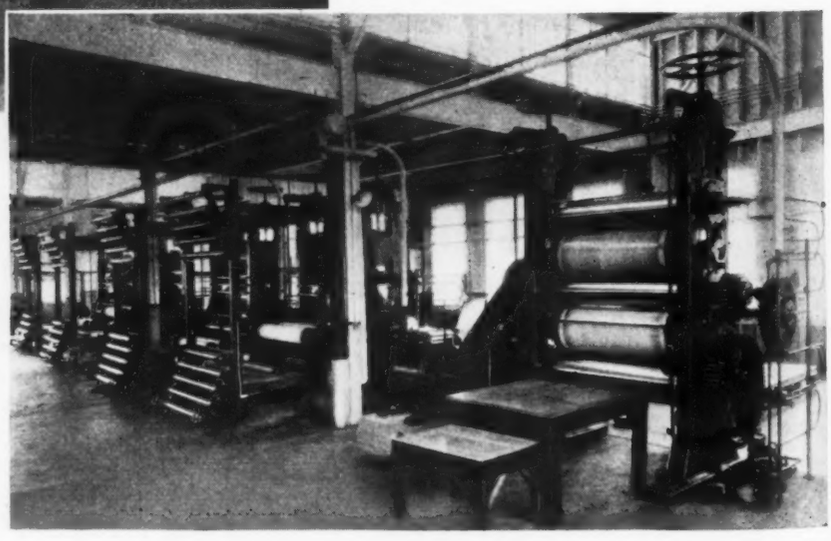
Installation of multi-design true-rib machines at plant of Infants Socks, Inc., Fond-du-Lac, Wis. (Fidelity Machine photo)



Four automatic spoolers have replaced 18 of the old type at Ninety-Six (S. C.) Cotton Mill. (Barber-Colman photo).



Circulating-spindle winder at Sauquoit Spinning Mills, Inc., Gadsden, Ala., preparing cones for high-speed warper. (A. S. Thomas photo)



Battery of five modern calenders in southern finishing plant, the first one convertible from friction to rolling and vice versa. (H. W. Butterworth & Sons Co. photo)

rooms were brought together at one location. This step simplified control and reduced the supervisory force.

"Another principle to be borne continually in mind is the attainment of a straight flow of material through the plant from one end to the other. The back-tracking or crossing of material in process is apt to cause confusion and additional cost for handling.

Old Buildings Present Difficulties

"The difficulties of obtaining proper alley spacings, good light, a straight-line flow of production, and consolidated process are infinitely greater when the problem concerns an existing plant rather than a new one. The result is always a compromise between the ideal and the practical. Sometimes it is good judgment to waive the rule of no new construction, as was done at the Exposition Cotton Mills, where it was finally decided to build a new picker room. This was a small, one-story, inexpensive structure and permitted the flow of material in a straight line through the spinning mill. Incidentally this building was constructed of bricks recovered from an old wall formerly part of a rope race which was dismantled. (See illustration.)

"While old buildings frequently can be made to accommodate modern machinery arrangement, due thought should be given to minor improvements in the buildings themselves. Where wood sash exist, they should be replaced with steel sash. Occasionally ventilation can be improved in old mills which do not have roof monitors by the installation of revolving ventilators."

Many mills have found it necessary to replace roof supports, and in a large number of cases an entirely new roof has been put on. As a part of a general modernization program in plants of the Proximity Mfg. Co., Greensboro, N. C., the roof of the White Oak mill was renewed and insulated, and old wooden saw-teeth were replaced by steel frame work and saw-teeth with steel sash. Improvements in the building of the Proximity plant, also included in the modernization program handled by J. E. Sirrine & Co., Greenville, S. C., embraced the replacement of old wooden construction in the daylight side-wall area with steel columns and steel sash. Concrete platforms and steps replaced old wooden affairs.

In the bleaching, dyeing, and finishing division, according to W. A. Lang, the revamping of power plants and the installation of bleeder-type turbines will effect marked economies. One of the most interesting power-plant installations made in the textile industry in recent years is that of the Proximity Mfg. Co., which was designed to utilize process steam from the Proximity Print Works in power generation and is a notable success.

Humidifying and Lighting

On the whole, mills have been fairly progressive in the adoption of humidifying apparatus, according to Mr. Lang; but he points out that in many instances additional humidification would be of considerable advantage. The installation of systems of higher capacity to provide for extreme rather than average conditions, and the introduction of control equipment for maintaining constant relative humidity, have been recommended in many instances for old mills with inadequate humidifying equipment. Direct moisture humidification has been tied in with cooling and ventilating apparatus to advantage in some mills. Ventilating fans and exhaust louvers were installed with control equipment.

Mr. Lang believes that few mills are properly lighted. While the cost of installing adequate lighting systems often is considered rather high by the mill management, good light pays for itself by retarding fatigue in the operative and improving the quality of the manufactured product. The proper selection and application of paint for mill interiors, affording the best reflection of light as well as protection for material surfaces, makes possible the maximum utilization of available natural light.

Where it becomes necessary to convey material by mechanical means, the speed of transfer should be considered, it is pointed out by C. L. Emerson. A new high-speed elevator, for instance, might profitably replace an old, slow-speed machine. Gravity roller conveyors for cloth, as shown in the accompanying illustration of such a system at Exposition Cotton Mills, have been found to be economical features in some cases. Often mills can install metal chutes for handling materials in process or packing cases from higher to lower levels. These have been very practical in mill warehouses and in hosiery mills. In the latter case they convey hosiery from upper floors to basement dyehouse.

Manufacturing Processes

It is impossible to cover within the scope of this article all the manufacturing processes in the various divisions

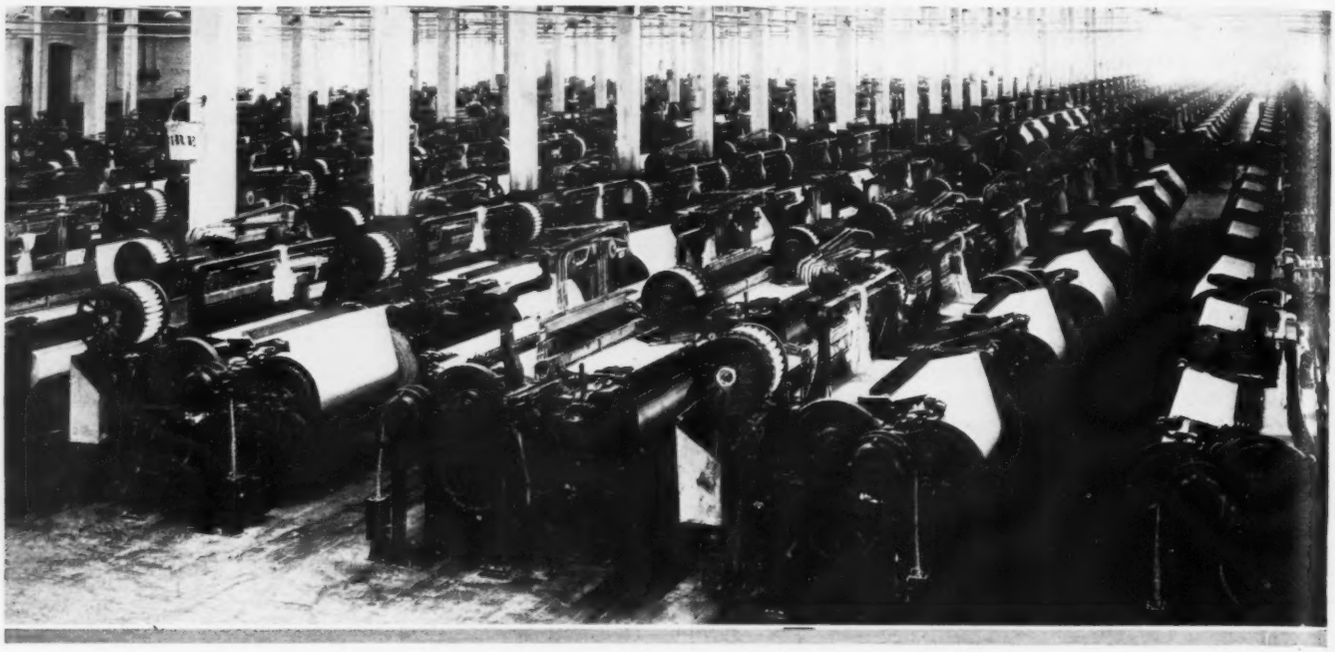
Time Opportune for Studying Existing Plants

The times afford an excellent opportunity to study every existing plant in minute detail to determine what improvements and economies may be made. Even where circumstances preclude the immediate expenditures involved, the study is still worth while as a map and guide for use when conditions change.

Without changing existing buildings, machinery can often be arranged with greatly increased efficiency. Certain general principles guide such reorganizations involving the consolidation of processes, the straight-line flow of work, the provision of adequate working alleys, spare floor, light, etc. Each individual case calls for a compromise between the ideal and the practical, and the most thorough study and the broadest knowledge of textile engineering must be focused on the problem in order to obtain the best results.

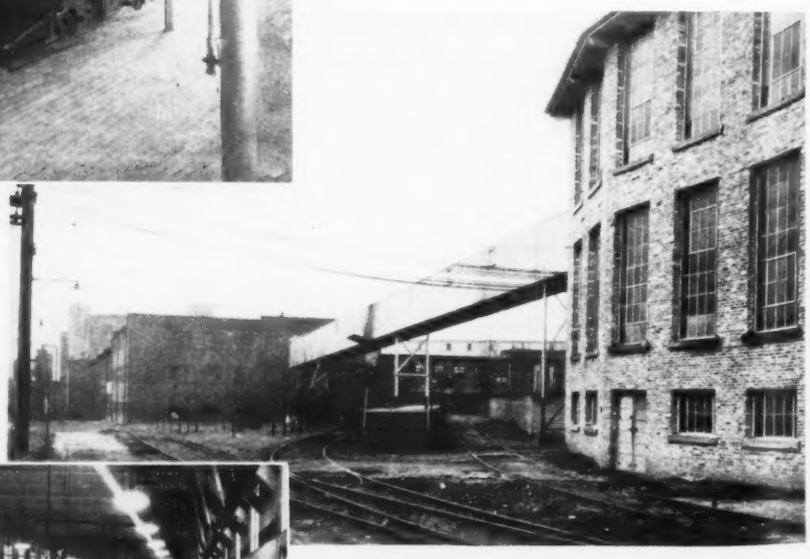
New textile machinery has been developed in the last few years for almost every process. Only by the installation of modern machinery can the lowest manufacturing costs be obtained.

—C. L. EMERSON
ROBERT & CO., INC.
ATLANTA, GA.



Weave shed at Spofford Mills, Wilmington, N. C. The new motor-driven looms give high production and low cost. (This photograph, and those of the Exposition Cotton Mills below, supplied by Robert & Co., engineers)

Installation of one-process pickers at Exposition Cotton Mills, Atlanta, Ga., operated by two men in place of the former twelve



By means of a gravity roller conveyor at the Exposition Cotton Mills bales of cloth slide from the cloth room at the right to the warehouse and shipping room at the left.

New humidification and lighting systems have improved conditions in the weave shed of the Exposition Cotton Mills.

of the industry. An attempt will be made, however, to discuss the most important branches and departments insofar as recent modernization is concerned. The revamping and rearrangement of cotton spinning and weaving are discussed by Mr. Emerson as follows:

"It is of course important to arrange all machinery so as to obtain working alleys of sufficient width, also sufficient spare floor space, and best possible natural light.

"New types of high-speed looms have been placed on the market during the last two years which are 20% more productive than the former types. Such a reduction in the number of weavers and loomfixers merits more serious consideration. Spofford Mills, Inc., Wilmington, N. C., now has a most efficient weave shed, as shown in the accompanying illustration, with several hundred new looms, all installed in an existing building. Numerous other mills, after studies by engineers, have installed from one hundred to one thousand new-type looms. Where new looms are not purchased, the mill should go to an extreme in putting its old looms in the best operating condition possible."

"The problem of what to do in textile modernization differs in each individual mill," according to W. A. Lang. "The fine-goods mill, for example, may still be able to compete with the narrow-gage frame and plain loom; whereas the coarse-goods mill will find these types of equipment expensive to operate. Again, many older mills, in which machinery is group driven, will not find it advisable to install individual motors on old equipment. However, if new equipment is purchased, the individual drive for certain machines is well worth while. In some mills there are plain looms still in operation that should be replaced by automatic looms. In time there will be a sufficient number of the new high-speed automatic looms to render obsolete earlier automatic looms."

Next Development in Slashers

Continuing the discussion of cotton-mill modernization, Mr. Emerson says: "Naturally it will be impossible to get the utmost efficiency out of high-speed looms unless the warp and filling yarns come to the weave shed in good condition. The slashing operation is most vital to well-running warps. It is probable that the next major development in textile machinery will be in slashers; but even today scientific control of size and temperature, when employed on existing slashers, will help to give a round yarn and one with a regain of 7 to 8%. Such warps will greatly decrease loom stoppages.

"Still further back in the processing we find that the character of the warps coming to the slashers is improved by the installation of high-speed warpers and spoolers. These machines not only produce a more resilient and better yarn, but also materially reduce the number of employees in the spooling and warping department."

An example of the saving resulting from replacement of old-style spooling and slow-speed warping by modern automatic spooling and high-speed warping is an installation at the plant of the Ninety Six (S. C.) Cotton Mill. Four 120-spindle spoolers and three high-speed warpers replaced eighteen old-style spoolers (2,340 spooler spindles) and 20 slow-speed warpers. (See accompanying illustration.) Economies resulting from this replacement were: (1) elimination of 30 operatives, day and night running; (2) saving of 7,000 sq.ft. of floor space; and (3) reduction of 11,225 lb. in the average quantity of yarn in the spooling and warping processes at any given time. Excellent results along this line have also been obtained with cone winders and high speed warpers.

Long Drafting

"Long-draft spinning is most effective in improving the quality of both warp and filling yarn," according to Mr. Emerson. "Long draft was installed on existing frames at Spofford Mills, Inc., to very good advantage. Of course, present-day frames have other advantages in addition to long draft, and mills with very old narrow-gage frames would profit greatly by scrapping them, if finances permit, and purchasing new spinning frames.

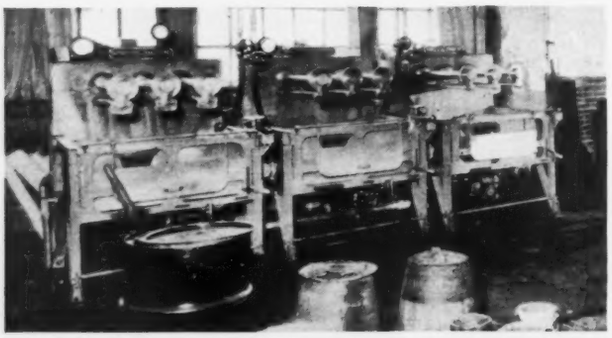
"At Exposition Cotton Mills the installation of one-process picking reduced the number of picker-room employees from twelve to two. Such a reduction in labor costs obviously pays for the new machines, aside from the subsidiary advantage of a better product. Most mills have in recent years improved their methods of opening cotton, but those that have lagged behind the procession should at once proceed to put this very necessary foundation under the structure of their manufacturing processes. Several mills have abandoned their dust pits by the use of the Rogers system of re-circulation in picker and opener rooms. This system permits the maintenance of proper humidity in the picker room and eliminates the principal cause of uneven lap weights.

"The operation of textile mills is becoming more scientific, but there is room for the intelligent use of a good many meters not usually seen in the average mill —for instance, psychrometers, anemometers, tachometers, foot-candle meters, and even thermometers. A few hundred dollars invested in such instruments, plus the time of some young college graduate who is willing to work, will certainly pay dividends. Every mill should

Program to Be Carefully Planned and Followed

Modernization programs should be carefully planned, based on a survey of plant equipment made by competent engineers, and not undertaken in a haphazard manner. Check-ups at intervals of about two years should be made to insure that the correct program is being followed. In every case where the installation of new equipment is contemplated, it is essential that the economies and advantages balance the increased carrying charges. All of the better and sounder-managed plants have some kind of replacement plan. Among the most pressing needs of the average textile mill are better understanding between the selling house and the plant; coherent planning of production, processes, and development; and modernization of buildings and equipment.

—W. A. LANG
LOCKWOOD GREENE ENGINEERS, INC.
NEW YORK, N. Y.



Three new skein-dyeing machines installed at Penn Worsted Mills, Philadelphia, to replace hand tubs (Smith, Drum & Co. photo)

set up and maintain a definite schedule of inspection and parts replacement on all of its machinery, to the end that repairs may be made before actual breakdowns and stoppage occur."

Woolen and Worsted

"Equipment obsolescence is even more marked in the woolen and worsted industry than in cotton manufacturing," in the opinion of W. A. Lang. "Many mules and non-automatic looms are in operation which could be replaced to advantage." Woolen and worsted cards have been redesigned for strength and rigidity to provide higher speeds with less vibration, while automatic feeds for controlling the weight of stock fed into the card prevent more than a 2% variation above or below the predetermined weight.

"At the Davenport Hosiery Mills, Chattanooga, Tenn., makers of 'Humming Bird' full-fashioned hosiery, greater efficiency is being obtained by constructing a third story on the existing two-story building for use as a finishing department. This contains finishing processes which were formerly carried on in a building remote from the knitting operation." according to the discussion by Mr. Emerson.

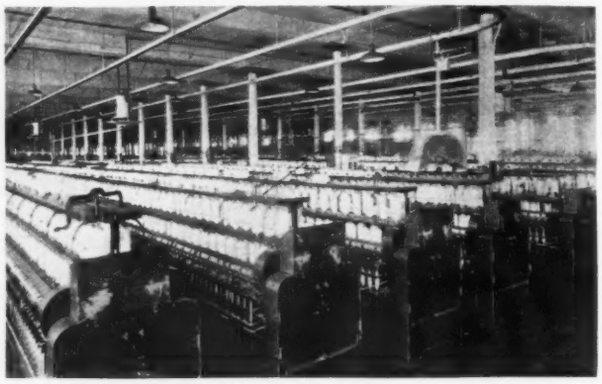
Finishing Plants

"Finishing plants—more than gray-goods mills—lend themselves to regrouping of equipment to permit straight-line production and the consequent gain in efficiency," it was pointed out by Mr. Lang. "In many cases operations now conducted as separate processes are well adapted for combination in range. The installation of dyeing and finishing equipment constructed of Monel metal, stainless steel, or other corrosion-resisting materials, will often prove a profitable investment.

"The tremendous waste of heat apparent in the average finishing plant can be reduced to a marked extent by the installation of modern drying equipment. The newer types of textile dryers, for example, make possible large savings in steam, and at the same time allow greatly increased production with the same amount of floor space."

The general situation with respect to textile-mill modernization is aptly described in the following statement from C. L. Emerson:

"Under present business conditions it may prove good management to scrap entirely the most obsolete portion of all the machinery. While this decreases the productive capacity of the plant, it may make the operation of the entire mill more profitable and will provide unused floor space which can later be filled with new machinery It would be interesting to know how many operating machines are really a liability instead of an asset, but which are kept going because the owners have never separated the costs of operation between the entirely obsolete and the comparatively modern parts of their equipment. It is safe to say that if this procedure should be strictly carried out and the obsolete scrapped, there would remain very little excess productive capacity in the textile industry."



Recent installation of wide-gage, tape-driven, large-package, long-draft spinning frames at Dwight Mfg. Co., Alabama City, Ala., which replaced narrow-gage band-driven, short-draft frames. It will be noted that the room is equipped with bunchless automatic cleaners. (Whitin Machine Works photo)

Interior of new wet-finishing building, Talbot Mills, No. Billerica, Mass. (Chas. T. Main photo)

ANNUAL TEXTILE MARKET OUTLOOK

The market analyses which follow, all stress the value of the lessons learned in the hard school of 1931 experience as of particular value in charting the business course for 1932. The depression outside the industry is something textile manufacturers have almost succeeded in over-riding but irresponsible competition within the industry is the evil which must be driven out if 1932 is to be recorded as anything like a satisfactory year.

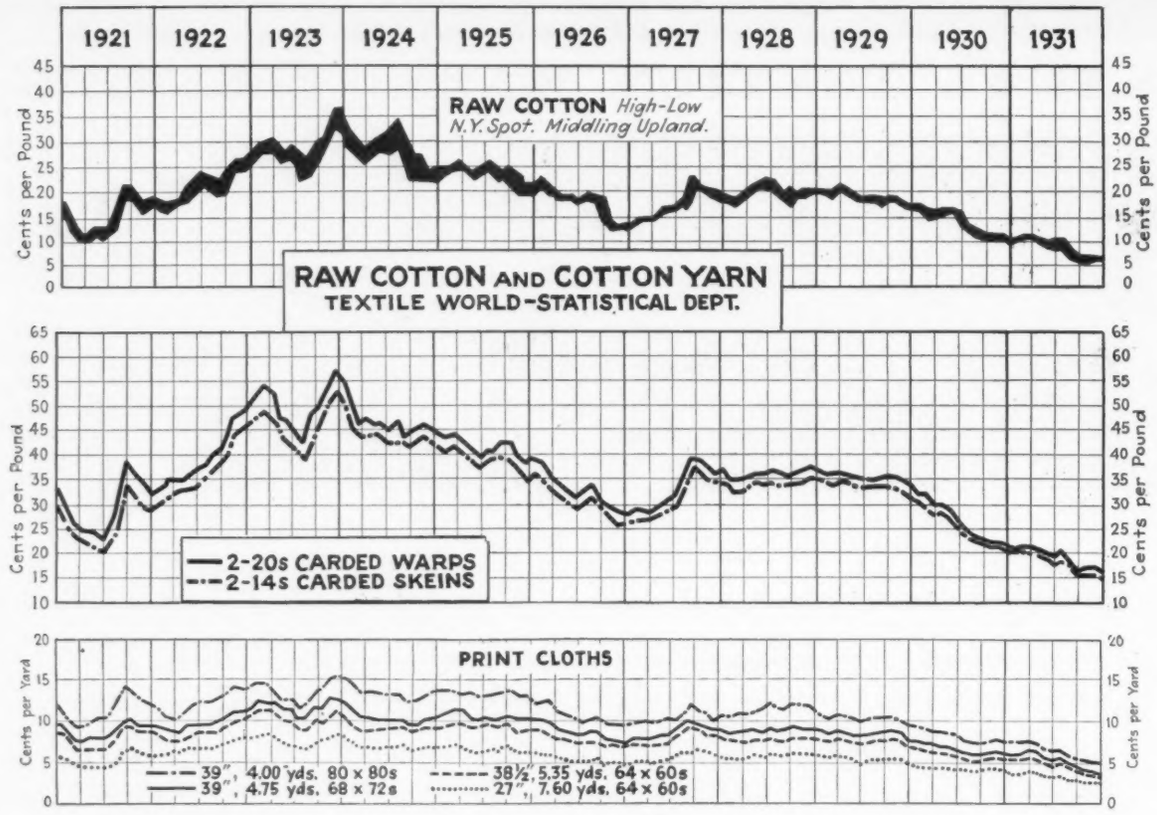
Cotton Decline and Goods Production Rate Carry 1931 Problems into 1932

THE price record of 1931 in the cotton market, as in practically all other commodities and securities, was one of severely declining values.

The market held fairly steady during the first quarter of the year on expectations of a sharp reduction in the crop of 1931, combined with hope of improving conditions in the textile market, and trading levels in the contract markets ranged from about the 10 to 12c. level. Increased sales of carded cotton cloths with a moderate increase in mill activity contributed to the steadiness, but as the spring advanced ideas of the probable reduction in acreage planted were scaled down somewhat, while general business conditions failed to develop as favorably as anticipated. July contracts which had sold as high as 11.73 in March dropped to 8.16 and after a moderate rally on President Hoover's announcement of the one-year moratorium on German reparations, prices eased again owing to the failure of the goods trade to fully maintain its improvement and indications that the crop was getting a late but fairly favorable start.

There were comparatively few in the trade, however, who felt that, with a reduction of 10% in acreage and a sharp curtailment in the use of fertilizers, a crop of over 13½ to 14 million bales was in prospect and after declining to about the 8½c. level prices held fairly steady until the first Government crop report of the season was issued early in August pointing to a yield of 15,584,000 bales compared with the 1930 crop of 13,755,518 running bales. This, combined with the world's carry-over of about 8,800,000 bales from the previous season, was regarded as pointing to an overwhelming supply, and estimates of the yield were increased by each succeeding Government report with the final estimate in December pointing to a yield of about 16,918,000 500-lb. bales, or in the neighborhood of 16,500,000 running bales. Prices declined quite steadily as the size of the crop developed until the break of October, when October contracts sold at 5.32 or the lowest price touched in the futures market here since 1898.

The indicated supply of lint cotton including foreign growths available for distribution in this country for the last eight months of the season is calculated at about 18,500,000 bales against 13,600,000 last year and unless exports and domestic consumption for these eight months exceed that of last year, there will be a carry-over of approximately 11,000,000 bales in this country at the beginning of next season. The necessity for a smaller crop in 1932 is therefore apparent and bullish



sentiment toward the end of the old year seemed contingent upon reduced acreage and yields and a gradual revival of general business conditions at home and abroad, or the inflation in commodity values which many expect to follow abandonment of the gold standard in various countries abroad, and a broadening of the credit base at home.

Yarns Bothered by Low Prices

A large volume of business, together with constantly declining prices, featured the cotton yarn market in 1931. Those houses selling in all territories report a heavy poundage sold, but operators in limited markets, such as Philadelphia, were not quite so fortunate. Business in that particular territory is considered the poorest for years because of limited activity in plush, upholstery, men's wear and dress goods mills. Carpet mills alone for the first nine months were large buyers. Carded knitting yarns formed a most active feature because of activity in underwear mills throughout the country. Some demand for combed yarns was noted in this industry, but these yarns, together with mercerized yarns, lagged generally with spasmodic buying and erratic prices.

The year's business has not been profitable. Spinners' margins shrank to the vanishing point. Dealers' commissions suffered because of low prices.

January opened with some inquiry for yarns after a slow December. Spring business developed slowly until February when a good volume was noted. However, from that time on, buying fell off; the market drifted along with steadily sagging prices despite spinners' resistance. Manufacturers were not getting much business, so buying was usually confined to immediate requirements. A brief upturn was shown in the middle of the year when cotton advanced due to European conditions. This rally failed to hold; the Government's cotton crop report resulted in further declines. Prices finally receded to a low point attractive to large operators, who took advantage of the market to place orders running well into early 1932.

An outstanding feature at the end of the year was offered by well maintained deliveries against contracts. Shipments were called for in haste. Inquiries for yarns developed for deliveries in January, all of which were considered definite indications of a very limited supply of yarns in consumers' hands. As a result there is a feeling of optimism over the 1932 outlook for business.

The broader acceptance of curtailing production when demand is slack, together with the elimination of night work, have all contributed materially to the development of a better merchandising policy which should be more generally adopted as its value is recognized.

Profitless Selling of Cottons

The thorn in the flesh of the cotton goods end of the market through 1931 was inability (with rare exceptions) to make a profit. This came principally from exaggerated competition on price which was strongly supplemented by inventory losses. Cut-throat competition seems to arise from excessive pushing of production at times when buyers are disinterested and as a problem extends into 1932. The hopeful side to the picture is that this difficulty came to such a pass in the last quarter of 1931 that buyers themselves took a hand in urging stability on sellers and the abuses of the situation have been so thoroughly aired that correction to some degree must follow in coming months. Inventory losses, despite the hedging opportunity offered by the cotton exchange, were large in 1931 because values slid to unexpected depths by the end of the year. Likelihood of a similar drop in 1932 is remote and the inventory loss should not be so prominent on mill statements a year from now. Costly lessons of the past should there-

fore help in making 1932 a year of possible profit.

Despite its anguish, 1931 was a year of good yardage volume in cottons. The first quarter was exceptionally good, affording all-time records of sales for some houses. The three following quarters were successively less encouraging. Prices up to early July seemed to have a fair chance to hold fair parity with row cotton, but as the bumper cotton crop came to be anticipated, followed by international and domestic financial difficulties, goods prices slid off faster than the raw material and opportunity to increase margins was thrown away and dwindling margins substituted. Last November it was said that print cloth prices netted a loss of 2c. per pound to most mills which met current market levels. The industry may not be able further to increase volume until general business definitely picks up, but the matter of setting a profit on what it does sell is clearly within the grasp of the trade if it acts intelligently.

The thought that low-priced raw material usually expands distribution has been working itself out, and adds its promise to the new year. Highly successful promotion of cotton fabrics for women's wear is current and this material now runs the gamut from working pajamas to formal evening attire. Novelties and revival of old weaves has helped this trend—for example the success of pique and the promised revival of seersucker. Broadcloths have become virtually a staple. Rayon mixtures have had their ups and downs, the latter especially near times of rayon price changes, but as stability now seems assured, smoother business may be in store.

Domestic cottons have sold well but at unsatisfactory margins. Heavy cottons, especially ducks have been depressed by the curtailment in shipping and building but may now be geared to a slower movement.

Raw Material Is Strongest Element in 1932 Wool Picture

A STABLE market for domestic wools is the prospect for 1932. With stocks relatively short, moderate optimism is the prevailing tone of the market. Stable to advancing values in the raw material are seen to furnish a presumptive basis for manufacturing profits in 1932. Profits for mills in recent years have depended to a considerable degree on favorable inventories, actual profits from the fabrication of wool apparently the exception.

The wool trade throughout the year 1931, particularly in the second half, showed no sign of depression or uncertainty. A larger volume of wool was sold than for several years and if the trend in profits had been as satisfactory as the trend in consumption, 1931 would have been a banner year.

How it became possible for so large a volume of wool to be sold without a sharp advance in prices would require considerable explanation under normal conditions; in this case the amount of wool in sight at the beginning of the year and a larger clip in prospect were more forceful in forming price opinion than was the outlook. Nevertheless, the large measure of stability shown by average prices in the Boston market for the last three quarters of 1931 confirms fully the belief of merchants and others that wool has settled on a bedrock bottom. The strength of wool amid an industrial depression unique in American history is clearly shown in the table herewith:

	Territory	Fleece
April-June	51.1c.	22.9c.
June-September	51.8c.	23.2c.
October-December	49.2c.	22.7c.

Whether the wool market can continue so relatively successful amid the disturbed industrial life of the country, may still be an open question. The greatly reduced buying power of the public cannot be overlooked and resistance of retailers to current prices on clothing continues strong. While such a development may not in the long run decrease the amount of raw material required it may not unlikely stress the attractiveness of the cheaper wools of combing types and at the same time bring into greater manufacturing prominence wools of the woolen order, together with noils, wastes and reworks.

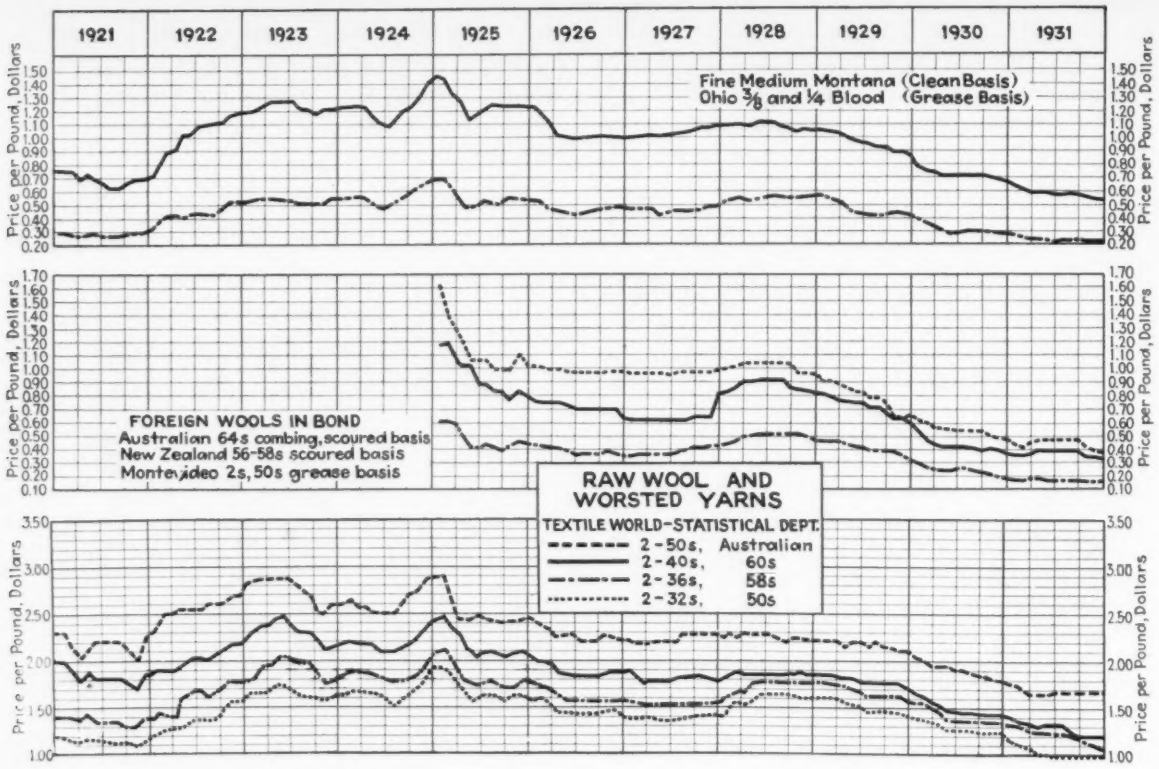
Carpet wools had an unsatisfactory year. Beginning 1931 they were at a comparatively low price. This situation continued until March and April when prices rose about 20%. However, from that point there was a constant decline so that at the close of the year values of carpet wools are the lowest in history, it is stated, with an average cleaned price of 18c.

Worsted Yarns Hope for Improvement

Like other commodities, worsted yarns faced a gradual decline in prices in 1931. A respectable poundage was sold, but below that of 1930. The bulk of this business was crowded into the first part of the year, with rushed deliveries at times. Competition for business was at all times very keen so that year was largely a buyers' market with the usual effect upon values. Prospects for 1932 are promising.

A quiet market opened 1931 continued over from December, 1930. Uncertainty was noted as to requirements. Bathing suits were very late, with practically no business of moment. Weavers' purchases were small but fairly numerous, although price concessions were noticeable. However, in February volume buying began on swim suit yarns. Men's wear mills were buying mixes, with orders for goods exceeding those for yarns. Bradford yarns, because of an advantage in price began to overtake French spun in interest. Activity prevailed for a period of six to seven months. Duplicate business in men's wear heavyweights ran into the late summer and early fall. Swim suit business, with depleted stocks, ran much later than usual, so that knitters were working on these orders in late August. Dress goods business appeared rather scattered, with wool mixes, fancies and crepe effects leading.

Constant efforts to obtain better prices in the face of firmer wools presented a problem. Spinners were striving to help manufacturers maintain quality at a price, with a development of various blends, using domestic wools chiefly because of high prices for imported wools. Half-blood and three-eighths dominated, but finer grades were not neglected. Competition prevented spinners



from securing a profit. Frequently quotations puzzled competitors unable to meet these prices.

Early in the fall demand declined. Unseasonable weather which continued late into the fall, delayed buying for the winter. Marked declines are to be noted as the year closed with limited trading; e.g., 2-30s, 64s, French mixes from $1.55 to $1.60 down to $1.32½; single 18s, slub-dyed, 50s-52s, from $1.00 to $1.05, down to 92½c.; 2-20s, 50s, Bradford, from 97½c. to $1.00 down to 75c.

Wool Goods Overproduced

The wool goods industry enters 1932 in somewhat better frame of mind than it entered 1931. This is due more to psychological elements than to any concrete improvement in position. True, some firms enjoyed a profitable twelve months, but these were few. Generally speaking the industry just about broke even. Nation-wide observance of "Wool Goods Week" in the final quarter proved a tonic, both in stimulating immediate retail call for wool goods and in showing mills the acute need of further promotion of this type. With aggressive merchandising and careful watch on production, the current year should prove satisfactory.

Curtailment of output is a vital factor; there was a healthy trend in this direction during the second half of 1931, but the policy was not sufficiently general to be fully effective. The last year was decidedly a wool year for women; women's wear fabrics, while they moved unevenly and at close range, ran up comparatively good volume. Overcoatings fared poorly during the third quarter, due to abnormally warm weather, but curtailment of output kept levels fairly steady. Worsteds were less satisfactory; one acute observer has estimated that of the total worsted mills operating in 1931 50% lost money; 40% broke even and 10% reported a profit. This is scarcely a happy picture and it is due mainly to cut-throat competition brought about by over-production. The Lawrence, Mass., strike in the fall served only slightly to offset the glut on the market.

Improved Fabric Outlook Features Silk Market

CONFLICTING trends make it difficult to offer any exact diagnosis of the 1932 outlook in the silk industry. The primary market entered the new year very hesitantly; prices showed a decided downward trend during the final quarter and reached record low levels. There was apprehension for a time regarding the outcome of the Chinese-Japanese trouble in Manchuria, and its possible effect upon the Japanese silk industry, but time proved this fear to be without any real basis. The Japanese gold embargo weakened the yen, however, and silk was very low until currency stabilized.

Demand for raw silk was uncertain throughout the last year, reflecting the unsatisfactory condition in American industry. Strikes, curtailment of output and a fear of the future, all militated against advance silk buying. Stocks in Japan had been large and there was apprehension regarding the possible "dumping" of the 100,000 bales of raw silk stored there; this fear was allayed in May when the Japanese Government announced that the surplus would be held for home consumption, but it was revived again early in fall. With prospects pointing to a sounder domestic situation, raw silk position should show further improvement this year, though occasional recessions are inevitable.

Importers regard the outlook with a certain degree of confidence. The National Raw Silk Exchange now def-

initely established, tends more and more to stabilize the market. Japan's efforts toward curtailment of output have not proved so successful as had been hoped; much depends this year upon what Japan does toward restricting silk production, as it is doubtful whether domestic consumption will show any decided increase.

New Broadsilk Policy

Some months will elapse yet before the new policy inaugurated by certain leading broadsilk firms, can show specific financial results, but the current trends are encouraging. The silk fabric industry had its back to the wall during 1931 and many firms felt the pinch. Backward buying, severe losses on spring prints, and a deplorably general practice of pirating designs made for a discouraging first half. Manufacturers approached the fall with caution and output of fall fabrics was curtailed, resulting in a firmer price tone for most of the fall season.

The success of this effort stimulated further interest by the mills and they approached the end of the year in an unusually cooperative frame of mind. Several houses refused to turn out more than nominal stocks for the first printing of designs and also made effort to protect prints against cheap copying by competing firms. Industry opinion against design piracy was very strong as the year ended and it seems unlikely that unauthorized copying will be so prevalent this year.

However, the evils of the broadsilk trade have been scotched, not killed; there are still many firms which produce for stock, gambling on eventual demand, and these firms reported deficits at the year end. Little real improvement can be accomplished until the reforms now under way are generally adopted.

A happy contrast is offered in the pile fabric division of broadsilks, where mills reported a profit, some doing exceptionally well. The status of plain versus print fabrics in December indicated a decided trend toward plains, but prints were so definitely fixed in the mind of the industry that mills continued steady production.

Curtailment Helped Yarn Mills

For the yarn mills, the year was consistently quiet. Thanks to generally cautious production policies, prices held steady, barring the reaction to primary market fluctuations. Buying of thrown yarns by weavers and knitters was hesitant and confined for the most part to immediate requirements. Spinners enjoyed a good spring season in 1931 but the summer and fall were unseasonably quiet, and the current spring opened much later than usual. Spinners and throwsters can congratulate themselves on their sound curtailment policy as this helped them through a bad year. Continued caution is essential, if they are to eke out any profit during the first quarter of this year.

Ribbon Firms Prospering

Increasing tendency toward feminine styles together with aggressive merchandising and low inventories made 1931 a profitable year for narrow fabric mills. Rayon ribbons become steadily more important and may occupy a leading position this year. Assuming style continues to favor them, ribbon manufacturers should do good business at adequate profit during 1932. The care shown by these mills in management last year could be emulated with profit by broadsilk manufacturers. Velvet ribbons, mostly imported, moved steadily throughout 1931.

Economy May Raise Meager Profit Margin for Rayon in 1932

RAYON yarn producers look to the opening year with considerable optimism, and this sentiment is merited. It cannot be said that 1931 was a financial success; indeed, few if any companies made money in the first half and the second half showed only moderate improvement—this despite a record-breaking volume of business. However, some trends were manifest which offer real promise for the current year. Producers turned definitely away from the earlier policy of building up surplus, with the result that they ended the twelve months with comparative low inventories.

A growth of cooperative spirit was shown; producers are learning to think in terms of the industry as a whole, when it comes to adopting policies that have trade-wide significance. For example, we may cite the October price revision which reduced levels of finer deniers and advanced the 150s. During the weeks immediately preceding this step, the market had been buzzing with reports of pending price change, and the rumors became so general that they handicapped buying. Prompt action by the producers eliminated this hesitancy and cleared the air, making for active movement during the final quarter. This contrasted favorably with the vacillating attitude of producers when confronted with similar problems in preceding years.

The talk of possible mergers has died down and the industry appears to be adopting a live-and-let-live attitude. We write this rather hesitantly, as that trend is still in the early stages; developments during the current year will definitely determine whether this is a permanent change. The best minds in the industry hope that it may be. Especially significant in this regard is the leaning by smaller companies to curtail their stocks. The large companies themselves strongly favor such a policy, as making for a more stable market, and the close watch kept on stocks by all companies was an outstanding feature of 1931 in the industry.

Optimists talk of a possible price advance this year, but the drop in silk makes that very unlikely. The present rayon levels allow for only a very meager profit margin. Manufacturers bought heavily throughout 1931—the summer months led the biggest months of the preceding winter—but this brought cheer to rayon producers only as indicating a growing demand for their product. It did not bring commensurate profits. Financial reports of the industry as a whole for 1931 are not happy reading; they reflect the cut-throat policy which was rayon's gravest handicap during 1930 and which saw its peak in the price cut of last January.

Assuming, however, that prices do not rise, it is encumbent upon producers to effect the maximum economies consistent with efficient management. Here, too, the trade shows promising signs. Numerous leaders

expressed themselves with much force on the point during 1931. To paraphrase these opinions: It is time for the rayon industry to do some house-cleaning; there are many leaks which should be plugged; it is time for those in the industry to abandon the idea so popular in the early days, that rayon is some kind of a bonanza which will make money for its producers, irrespective of how mismanaged production or distribution may be.

The new year offers encouragement. Consuming industries have gained confidence; new markets have been discovered, old ones expanded, and much important technical advance has been made. Careful watch on output and economical management are two primary essentials; with these, and continued business improvement generally, the industry may look for at least a moderate strengthening of its financial position during 1932.

Waste Dealers Optimistic

Limited stocks helped the rayon waste industry to hold prices fairly steady throughout the year just closed and waste dealers regard 1932 with much optimism. Curtailment of imports has been a big factor in maintaining levels. Volume of sales was perhaps 40% below 1931, but there was an increased call for rayon staple, especially during the early part of 1931. Rayon waste has fared much better than some other textiles; open waste prices and thread waste prices now are but a couple of cents below this time last year, and the market does not look for any sharp recession. Indeed, opinion among dealers leans rather the other way. The growing popularity of staple rayon for sport and summer fabrics is significant and is expected to further show itself during the next few months. Buying was hand-to-mouth part of the time, but stocks were so low that frequently topmakers and garnetters were compelled to cover ahead; the amount of future contracting while less than the year previous was large and contrasted favorably with conditions in other textile groups where business was practically all spot throughout the year.

Lessons of 1931 May Help Knitters in 1932

THE outlook for this year in the knit goods industry is about as complex as is the picture of 1931 when reviewed. The depression has taught certain lessons and some divisions, notably the ribbed underwear industry, took these lessons to heart with beneficial results. Hosiery mills are not yet out of the woods, but they can see a clearing ahead; these manufacturers, while they had a particularly difficult year as regards labor problems—problems which are only temporarily solved—are making progress in other directions. Hosiery knitters grow gradually more conscious of the need for curtailment; surplus stocks dropped sharply during the major part of 1931 and trade leaders are urging that this policy be continued. Prices of all hosiery lines varied violently but lately they have inclined to firmness. With indications pointing to a predominance of novelty lines, it is more important than ever that hosiery mills hold down production to alignment with sales. It is clear style is going to be a vital element in women's hosiery during 1932, and styles have a mean way of suddenly dying, irrespective of how much stock may be on hand.

The cue for hosiery mills this year is acute caution. Better merchandising is essential; also low and more frequently checked inventory. A tightening up of management and elimination of "leaks" by some companies have made for financial improvement despite the depression; the achievements of these firms could be studied with profit by the trade as a whole.

Good Underwear Outlook

One can write with satisfaction and confidence of the underwear situation. This industry, handicapped more perhaps than any other textile division, is successfully digging itself out. Careful watch on inventory, greater price stability through the spiking of underselling rumors, and intelligent diversification of product, helped underwear manufacturers through a mighty difficult year. General sales hesitancy plus the urban trend away from heavyweight ribbed merchandise warned these knitters early in 1931; they gauged the outlook accurately and as a result found themselves in a comparatively good position when the new year opened.

Continued vigilance is essential, however, particularly as regards the growing consumer preference for medium and lightweight underwear. Some firms, among them leading concerns in the field, have added bathing-suits to their lines, as part solution of the problem. Others fortified themselves by virtually producing to order. The abnormally warm weather last fall accentuated the buyer tendency to procrastinate and precipitated a late congestion of winter merchandise orders; this caused some loss of business both to distributors and knitters as mills could not produce fast enough. Price strength was an outstanding feature of ribbed underwear.

Outerwear Lacks Stability

In outerwear the chief need of 1932 is for less price emphasis by sellers. Bathing-suit manufacturers did excellent volume last year but the profit margin was far from adequate. The depression had little effect upon consumer call for bathing-suits and this line seems to be thoroughly established as a staple. Demand was strong enough to justify a firm price policy but manufacturers themselves allowed a cut-throat situation to develop. The notable success of bathing-suits since the advent of the sun-suit seems to have created overconfidence among knitters, which feeling they allow quickly to slump into panic. The current outlook calls for more caution than usual; demand for bathing-suits shows no indications of decline except that buying is backward. The season in actual volume started later than usual but December brought a pick-up and the industry entered 1932 with some confidence. Bathing-suit manufacturers must not expect this year to be as easy sailing as the boom years which marked the beginning of the sun-suit vogue; a definite effort toward price stability is essential if the healthy volume now in prospect is to bring any profit. The financial reports of outstanding swim-suit manufacturers for 1931 showed a significant decline in net, and only the most careful watch on both production and merchandising will arrest this trend.

Sweater outlook for 1932 is fair, and this division has some encouraging signs to look back upon. Heavyweight sweater mills applied the brakes early last summer, anticipating a doubtful fall season; this curtailment helped them materially when unseasonably warm weather delayed all buying. Prices held signally firm despite the slack, thanks to moderate stocks. Volume was less than usual but profit margin was fair. There has been a trend toward medium-weight sweaters which should be watched during 1932; it tallies somewhat with the increase in city populations and the leaning to medium-weight underwear as against heavyweight goods. Berets promise to be a good sideline this year. The outlook for knitted ensembles is uncertain due to the highly variable style factor but manufacturers expect healthy turnover, at least on their ultra-lightweights.

From Consumer's Angle Dyestuff Situation Shows Little Change

FROM the viewpoint of the consumer, further consolidation of important producing units, steadiness of prices, and development of a variety of new products were factors of chief interest in the dyestuff field during the last year. Imports, mainly from Germany and Switzerland, have increased somewhat.

Introduction of two new classes of dyes — the Rapidogens and the Suprafix colors—was of particular importance to the textile printer. The former class differs from the well-known Rapid Fast colors in that they can be easily made into printing pastes of unlimited stability and therefore can be kept in the color shop indefinitely; also they can be fixed without steaming. The Suprafix dyes are vat colors, which hitherto could not be employed in printing, but now have been converted into a form insuring complete fixation upon steaming. In addition to these new classes of dyestuffs, a number of vat, naphthol, direct acid, acetate colors, etc., have made their appearance.

Of moment to domestic dyestuff manufacturers is the falling off in export trade. Thus, exports have dropped from 22,648,700 lb. for the first ten months of 1930 to 17,840,000 lb. in the first ten months of 1931. It appears that this is an opportune time to retrieve a good portion of that loss—especially when it is realized that China is the chief foreign consumer of American dyestuffs and that in the first nine months of 1931 Japan exported, mainly to that country, 3,895,600 lb. of dyes, an increase of 75% over the corresponding period of 1930.

Dye Production and Price Trends

The accompanying table shows comparative production of coal-tar dyes in the United States from 1918 to 1930 inclusive, and comparison with 1914. This table is based on reports of the U. S. Tariff Commission. For the first ten months of 1931, imports of dyes were 4,073,624 lb. valued at $3,573,114, compared with 3,471,630 lb. valued at $2,945,372 in 1930. Data on the domestic output for 1931 are not yet available but it is estimated that the domestic output will be about 92,000,000 lb. and domestic consumption approximately 66,000,000 lb.

	No. of Firms	Dyes Produced Lb.	Value	Average Price Per Lb.
1914	7	6,619,729	$3,470,096	$0.37
1918	78	58,464,446	62,026,390	1.06
1919	90	63,402,194	67,598,855	1.07
1920	82	88,263,776	95,613,740	1.08
1921	74	39,008,690	32,370,000	0.83
1922	87	64,632,187	38,779,312	0.60
1923	88	93,667,524	51,048,800	0.545
1924	78	68,679,000	37,086,660	0.54
1925	75	86,345,438	40,582,356	0.47
1926	61	87,976,624	36,950,182	0.42
1927	55	95,167,905	37,115,483	0.39
1928	53	96,625,451	40,582,689	0.42
1929	54	111,421,505	47,909,247	0.43
1930	50	86,480,000	37,186,400	0.43

Continuous Decline in Mill Shares

CONTINUOUS decline has featured prices of textile mill stocks in 1931 but shrinkage has been less than in general listed stocks. Excerpts from the review of the southern situation by H. J. Blackford of A. M. Law & Co., Spartanburg, S. C., follow:

"The general trend of the market for southern textile stocks during 1931 was one of steady decline which has reflected the general condition of the textile industry rather than general business conditions of the country as a whole. It is entirely possible for general business to improve and for the textile industry to lag behind because of chronic over-production, price cutting and general demoralization. It is true that southern cotton mills are operating at a greater percentage of capacity than almost any other industry. It is also true that they are showing a greater loss on operations than most other industries.

The question comes up constantly as to why there are not more receiverships and reorganizations. The answer is due to the current financing of mill operations by a few relatively strong commission houses rather than by banks.

"In looking into the future, there seems to be only one answer and that is to have sound combinations large enough to dominate the market for various types of goods and to secure greater operating efficiency, better results of distribution and an increase in the number of outlets for cotton goods. Combinations of strong companies under present conditions are likely to be efficient and have a profitable future. If 1932 does not see progress along these lines, textile stocks are almost certain to be lower at the end of the year than at the beginning."

The above comments apply also to New England. The cotton manufacturing corporations of New Bedford and Fall River have little of an encouraging nature to report for 1931, so far as business for the year is concerned, but most of the managements took advantage of the opportunity to place their plants in shape to meet current conditions and be ready to meet any revival of marginal profits. In New Bedford only six of the regular common stocks declared dividends, and three of these passed disbursements in the final quarter. In Fall River only two paid dividends.

As to the future, managements in most instances have cut inventories to the bone, reduced salaries of officials in addition to the general reduction of 10% cut for employees, written off values and maintained their plants in excellent condition. It is stated by executives that most of the losses sustained during 1931 were inventory depreciation, and that operating losses in most cases were negligible. In keeping with stocks throughout the country, mill shares depreciated considerably during 1931, but not to so great a degree as general stocks.

Summary of the Week's Developments in the Textile Markets

COTTON TEXTILE MARKETS: Continued improvement both actual and sentimental was reported from the cotton goods market this week. Cooperative efforts to restrain production within the bounds of consumption have been making more headway. This coupled with the abnormally low state of retailers' stocks makes a market which is sensitive to any slight gain.

The gray goods market was firm and fairly active at the opening of the week. Despite the fact that some converters are now willing to resell some of their contracts to take the profit which the recent rise in prices has given them, quoted prices from first hands remain steady. Development of the curtailment program has brought cheerfulness to sellers. Sales of 4-yard, 80-squares were made at 6c. for spots, with February and March at 5¾c. and later goods at 5⅞c. The market on 5.35-yard, 64x60s was 4c.

Inquiry continues for cotton yarns at a price not always acceptable to spinners, but business taken is not enough to afford opportunity to advance prices. Single combed yarns find improved demand. Cotton is steady.

WOOL TEXTILE MARKETS

The opening of February found wool goods in a slightly firmer position, with some divisions decidedly improved. Women's wear fabrics showed a sharp pick-up and the larger manufacturers were enjoying spirited business. Wool topcoatings had a favorable January due to the warm weather, but orders eased this week when winter played a return engagement; however, bookings cover the capacity of some firms for the entire month of February, so these units have little to worry about.

Worsted fabrics, especially the more conservative spring lines, became moderately active this week, and mill representatives are encouraged. Prices are steadier though not steady enough to permit more than nominal profits.

Worsted yarns find interest in prompt delivery, especially in knitting yarns. Prices remain unchanged in the absence of any volume business. Raw wool prices continue steady to firm, with fair movement of 60s and finer western wools while 48s to 56s were quieter.

SILK TEXTILE MARKETS

The raw silk market opened steady and strong this week with the selling aspect subordinated to the more vital question of political-military developments in the Orient. Importers regarded the Shanghai situation as potentially more important than the fact that American demand is backward. Thrown silk reflected the strength of the primary market and hosiery mills bought steadily for March delivery. Manufacturers of men's and women's knitted underwear are the chief buyers of spun silk; other outlets are sluggish. Broadsilk demand was moderate.

RAYON

The rayon market was active at all ends this week. The viscose process yarns are particularly in demand; knitters and weavers appear to be more confident of spring outlook and have increased output. Demand for weaving yarns centers on 100s and 125s, while the underwear mills are covering on 150s. Orders extend into March. Rayon production is about 75% of capacity and most companies enjoy a quick turnover. January yarn sales were slightly below the same month last year but were double those of December, 1931.

KNIT GOODS MARKETS

Women's full-fashioned hosiery prices continue steady and the outlook was promising. Reductions in prices of novelty lines have stimulated an already active demand; mesh hosiery volume was growing. Half-hose sold unevenly. Mild weather has sharpened the call for both lightweight underwear and lightweight sweater lines. Men's rayon and cotton shorts sold spiritedly this week, with prices firm and allowing of moderate profits. Orders were mostly four weeks ahead. Sweater mills were particularly encouraged by the heavy demand for women's lightweight sweaters; lacy effects in a wide range of styles moved steadily.

▸ Richard Lennihan Named Hamilton Woolen President

Richard Lennihan, treasurer of the Hamilton Woolen Co., Southbridge, Mass., has been elected president of the company, succeeding Thomas P. Beal, who has been made chairman of the board, it became known Wednesday. Ross G. Walker has been elected treasurer.

▸ Ingrain Hosiery Knitters Get Voluntary Raise

Prospects for success of the wage-cut plan adopted last fall by the American Federation of Full-Fashioned Hosiery Workers and the Full-Fashioned Hosiery Manufacturers of America, seemed brighter this week, with the news from Philadelphia that both groups had agreed upon a wage increase, effective at once, for workers in plants specializing in ingrain hosiery. The significant point, as seen by the trade, is the mutual good-will indicated in this step. It was explained that the adjustment was made because greater seasonality in ingrain hosiery put workers in this division at a handicap compared with those in gum hosiery. The revision reduces by 50% the wage cut which the workers' union volunteered to take last fall.

The change of rates for the ingrain group is shown in the following table:

	Old Rate	Increase	New Rate
Legging	.1625	.0438	.2063
Footing	.0440	.0189	.062
Topping	.0560	.012	.068
Looping	.0536	.0132	.0668
Seaming	.0560	.012	.068

▸ Children's Hosiery Lengths Revised

Further revision of the proposed standard lengths on a number of types of children's and infants' hosiery was made at a meeting of the committee in charge of children's hosiery standardization in New York, on Jan. 22, it is announced by the National Association of Hosiery & Underwear Manufacturers.

The revised lengths proposed follow:

BOYS' GOLF HOSE

Tolerance plus or minus ½ inch on each size.

Size	Needles	Cylinder (Inches)	Length in Inches New	Length in Inches Old
7– 7½	110–130	3	13½	14
8– 8½	120–140	3½	14½	15
9– 9½	130–150	3½	16	16½
10–10½	140–160	3¾	17	17½
11–11½	150–170	4	18	18½

The committee added the following: The above standards are based on mercerized, cotton, and part wool hosiery up to 50% wool. The lengths do not apply to boys' cut and sewed golf hose.

CHILDREN'S AND MISSES' RIBBED HOSIERY

Tolerance ½ inch on each size

Size	Needles	Cylinder (Inches)	Length in Inches New	Length in Inches Old
5– 5½	240–260	3½	15	15
6– 6½	260–280	3½	18	17½
7– 7½	280–300	3¾	21½	20½
8– 8½	300–320	3¾	24½	23½
9– 9½	320–340	4	27½	26½
10	340–360	4	28½	

INFANTS' RIBBED HOSIERY

Size	Needles	Cylinder	Length in Inches	Tolerances Plus or Minus
3–	180–200	2¾ inch	7	½ inch
3½			8	½ inch
4	220–240	3 inch	10	½ inch
4½			11	½ inch
5	240–260	3¼ inch	12	½ inch
5½			13½	½ inch
6	260–280	3½ inch	15	½ inch
6½			16½	½ inch

INFANTS' AND CHILDRENS' SOCKS

Size	Needles	Cylinder	Length in Inches	Tolerances Plus or Minus
4–4½	120	2¼	5	½ inch
5–5½	140	2¼	6½	½ inch
6–6½	140	2¼	7½	½ inch
7–7½	156	2½	8½	½ inch
8–8½	156	2½	9½	½ inch
9–9½	172	2¾	10½	½ inch
10	...	3	11½	½ inch

▸ Confidence Dominates Retailers' Convention

Confidence in the retail store prospects for 1932 was the dominant note of the twenty-first annual convention of the National Retail Dry Goods Association, held this week at the Hotel Pennsylvania, New York City. Among

matters of interest to manufacturers which the retailers considered were: design copyright legislation; standards of business practice between manufacturers and retailers; and piece goods problems "that lend themselves for solution through cooperative effort of manufacturer and retailer." The newest 1932 styles were shown at a fashion exhibit at the hotel Friday.

▸ Fear of U. S. Trade Break Closes Yokohama Silk Exchange Temporarily

Possibility of a break in trade relations between Japan and the United States due to the critical international situation at Shanghai, precipitated such feverish trading in Yokohama on Tuesday that the Yokohama Raw Silk Exchange suspended business in mid-afternoon. The exchange reopened Wednesday, with tone firmer. The National Raw Silk Exchange in New York opened weak Tuesday but was strengthened by news of intervention by the powers, and closed firm Tuesday afternoon.

Ferdinand Thun, president of the Berkshire Knitting Mills, one of the largest users of raw silk in this country, said on Tuesday that he did not believe the suspension of the Yokohama Raw Silk Exchange would materially affect his plant. "We have enough raw silk on hand to last at least three or four months," he said. "We must look far ahead in placing orders for raw silk. Silk at the present time is much too low. It must go up instead of down, the price is the lowest we have ever known. It is due simply to the disruption of international relations."

▸ Iselin Factoring Business Acquired by C. I. T.

Henry Ittleson, president of Commercial Investment Trust Corp., New York, announced last Saturday that the factoring business of William Iselin & Co., recently incorporated as William Iselin & Co., Inc., had been acquired by C. I. T., and that the new subsidiary would operate independently under the active Iselin partners. It was made clear that the new corporation was another wholly owned C. I. T. subsidiary, and would continue as a separate organization, carrying forward the best policies and traditions of the Iselin firm, more than 100 years old.

The addition of this third large factoring division of C. I. T. which begins operations with an estimated annual volume of over $60,000,000, will bring the total volume of textile factoring done by the C. I. T. factoring subsidiaries to an amount in excess of $200,000,000 annually. The other two factoring divisions are the Commercial Factors Corp. and Meinhard, Greeff & Co. These divisions are factoring over 575 mills, converters and importers in all the various fields of textiles.

Further details of this important development will be given in TEXTILE WORLD for Feb. 13.

FOREIGN TRADE IN TEXTILES AND TEXTILE FIBERS

	Exports		Imports	
	1930	1931	1930	1931
Cotton, unmanufactured	$496,797,595	$325,592,719	$25,273,948	$6,070,265
Cotton, semi-manufactures	15,006,726	9,818,248	3,113,629	1,787,494
Cotton, manufactures	73,676,976	50,256,204	43,105,595	38,864,649
Jute and manufactures	4,034,410	3,194,822	67,854,427	37,658,456
Flax, hemp and ramie and manufactures	526,479	262,461	36,594,066	29,797,735
Other vegetable fiber and manufactures	4,599,364	4,323,980	29,577,073	17,161,406
Wool and mohair, unmanufactured	74,613	69,667	37,092,271	22,372,115
Wool, semi-manufactures	926,288	513,172	6,438,735	2,104,648
Wool manufactures	4,022,547	2,483,973	33,703,480	20,799,958
Hair and manufactures	1,928,988	1,251,996	3,624,113	2,783,429
Silk, unmanufactured	.....	.....	266,137,552	192,287,543
Silk manufactures	14,341,185	9,562,598	18,583,495	15,631,149
Rayon or other synthetic textiles	5,907,505	3,848,763	8,375,656	4,743,093
Miscellaneous textile products	18,064,678	12,447,947	20,760,223	19,297,027
Total*	$639,907,354	$423,626,550	$600,708,414	$411,735,937

Included in the total imports are articles ordinarily dutiable, imported free, to the value of $474,151 in 1930 and $376,970 in 1931. This accounts for failure of totals, as given above, to check with addition of sub-classifications.

▸ Riverside & Dan River Shows Net Profit in 1931

The annual report of Riverside & Dan River Cotton Mills, Inc., Danville, Va., presented to stockholders at their meeting, on Jan. 28, showed net profit after depreciation for year ended Dec. 31, 1931, of $96,579. This compares with a net loss of $665,432 for the year of 1930. Sales for 1931 totaled $10,710,522 against $11,713,366 for 1930, the decline of price accounting for the reduced dollar volume. Officers were re-elected. Further details will be given in our next issue.

▸ Big Increase in Franklin Process Profits

The financial report of the Franklin Process Co., of Providence, R. I., which was read at the annual stockholders meeting held in Providence last week, indicated that the company substantially increased its net profit during 1931 as compared with 1930. The earnings statement was not made public, but the balance sheet showed that income taxes payable in March for the taxable year of 1931 will aggregate $40,888, against $22,160 for the year previous.

It was stated that current assets amount to $1,026,986, as against $1,101,114 in 1930, and total assets $3,186,912, as against $3,187,426.

▸ Boston Wool Receipts

Receipts of domestic and foreign wools at Boston, also imports at Philadelphia and New York for the week ended Jan. 30, based upon data compiled by Dept. of Agriculture, follow:

	Week Ended Jan. 30	Total to Date 1932	Total to Date 1931
Domestic	361,000	5,089,000	4,271,000
Foreign	1,886,000	5,067,000	5,182,000
Total	2,247,000	10,156,000	9,453,000
IMPORTS AT PRINCIPAL PORTS			
Boston	1,886,000	5,067,000	5,182,000
Philadelphia	1,082,000	3,927,000	2,374,000
New York	1,318,000	3,730,000	4,137,000
Total	4,286,000	12,724,000	11,693,000

▸ Col. C. F. H. Johnson Addresses Philadelphia Wool Men

More than 50 members of the Philadelphia Wool and Textile Association were present at their monthly dinner meeting at the Down Town Club, Philadelphia, Friday, Jan. 29. President Herbert K. Webb presided and presented the guest speaker, Col. Chas. F. H. Johnson, president of the Botany Worsted Mills, Passaic, N. J. In his remarks, Col. Johnson emphasized the need of cooperative action in the industry which has shown lack of leadership or real cooperation.

Col. Johnson asserted that the smaller mills do more than 60% of the business to-day, and that it is not the larger units which are the leaders. He praised the work of both the National Association of Wool Manufacturers and also the National Wool Growers' Association, and expressed the opinion that the former organization offered a medium for the possible perpetuation of the aggressive and progressive trend manifested in the promotion of the National Wool Week.

Col. Johnson paid a tribute to the work of the Philadelphia Textile School and stated that it had been brought to his attention that the financial situation of the city of Philadelphia was such that the usual support offered by the city to the amount of $50,000 was not available. He suggested the adoption of a resolution urging the Textile Foundation to advance this sum to the school out of its funds in order that the work might be continued. The resolution was adopted unanimously.

▸ British Rayon Production for December and for Year

British rayon production for December was 6,070,000 lb. compared with November's 6,260,000 lb. and 3,240,000 lb. for December, 1930. The last quarter of 1931 marked an all-time high record production of 17,590,000 lbs. compared with the previous best three months (second quarter of 1929) of 15,680,000 lb. The 1931 total is 54,570,000 lb., compared with 48,770,000 in 1930 and 56,900,000 in 1929.

QUOTATIONS

at close of business, Feb. 2, 1932
Prices cover average quantities unless otherwise stated

Cotton Goods

	Feb. 2	Jan. 27	Feb. 3 1931
PRINT CLOTHS			
27 -in., 64x60, 7.60	2⅞c.	2⅞c.	3⅜c.
38½-in., 64x60, 5.35	4 c.	3⅞c.	5⅛–5¼c.
39 -in., 68x72, 4.75	4⅛c.	4⅛c.	5⅝–6 c.
39 -in., 72x76, 4.25	5⅛c.	5c.	6⅞c.
39 -in., 80x80, 4.00	5¾–6 c.	5¼–5⅝c.	7⅛–8 c.
BROWN SHEETINGS			
36-in., 56x60, 4.00	4¼–4⅜c.	4¼c.	5¼c.
36-in., 48x48, 3.00	4⅝–5 c.	4⅛c.	6⅛c.
37-in., 48x48, 4.00	4 c.	4 c.	5¼c.
PAJAMA CHECKS			
36½-in., 72x80, 4.70	4⅛c.	4⅛–4¼c.	5⅞–6c.
36 -in., 64x60, 5.75	4c.	3⅞–3⅞c.	5c.
MISCELLANEOUS			
Drills, 37-in., 3 yd.	4⅛c.	4⅛c.	6⅜c.
Denims, 2.20	9⅛c.	9⅛c.	11⅛c.
Tickings, 8 oz.	12 c.	12 c.	15 c.
Standard prints	6¼c.	6¼c.	7⅛c.
Eastern staple ginghams, 27-in.	6¼c.	6¼c.	8 c.

Cotton Waste

Peeler comber	5¾ – 6¼
Peeler strips	5 – 5⅜
Sak. comber	4¾ – 5
Choice willowed fly	2¾ – 3¼
Choice willowed picker	2 – 3
Sak strips	6¼ – 7⅛
Linters (mill run)	2 – 2⅜
White spooler (single)	4¼ – 4⅜

Cotton Yarn

CARDED (Average Quality)
Double Carded 2c.—4c., higher according to quality

SINGLE SKEINS OR TUBES (Warp Twist)

4s to 8s	$0.12½	22s	$0.16
10s	– .13	24s	– .17
12s	– .13½	26s	– .18
16s	– .14½	30s	– .19
20s	– .15	40s ex. qual.	– .28

TWO-PLY SKEINS AND TUBES

8s-2	$0.13	26s-2	$0.18–0.18½
10s-2	– .13½	30s-2	19– .19½
12s-2	– .14	36s-2	– .25
14s-2	– .14½	40s-2	– .26
16s-2	– .15	40s-hi.brk.	– .28
20s-2	15 – .16	50s-2	– .33
24s-2	17 – .17½	60s-2	– .36

SINGLE WARPS

10s	$0.13	24s	$0.17
12s	– .13½	26s	– .18
14s	– .13¾	30s	– .19½
16s	– .14	40s. ex.qual.	– .28
20s	15 – .15½		

TWO-PLY WARPS

8s-2	$0.13	24s-2	$0.17½–0.18
10s-2	.13½	26s-2	– .18½
12s-2	.14	30s-2	.19 – .20
14s-2	.14½	40s-2 ordin.	– .26
16s-2	.15	50s-2	– .33
20s-2	.15½ – .16	60s-2	– .36

8s-2 and 4-ply skeins and tubes; tinged, 11½; white, 12½; waste, 11

HOSIERY CONES (Frame Spun)

8s	$0.12½	22s	$0.16
10s	– .13	24s	– .17
12s	– .13½	26s	.18
14s	– .14	30s tying	18½– .19
16s	– .14½	30s reg.	– .20
18s	– .15	30s ex.qual.	.21 – .22
20s	15 – .15½	40s	– .26

COMBED PEELER (Average Quality)

TWO-PLY—(Knitting Twist) Cones

20s-2	$0.25	60s-2	$0.38 – .39
30s-2	– .26	70s-2	– .50
36s-2	– .29	80s-2	– .60
40s-2	– .30	90s-2	– .85
50s-2	.32 – .35	100s-2	.95 –1.03

WARPS, SKEINS AND CONES

TWO-PLY—(Warp Twist)

20s-2	$0.25	60s-2	$0.38 –0.40
30s-2	– .27	70s-2	.50 – .52
36s-2	– .30	80s-2	.60 – .62
40s-2	.31 – .32	90s-2	.85 – .90
50s-2	.33 – .35	100s-2	.95 –1.02

SINGLES

12s	$0.18½	30s	$0.26
14s	– .19	38s	.28½ – .29
16s	– .19½	40s	.29 – .30
18s	– .20	50s	– .32
20s	– .21	60s	.38 – .40
24s	– .23	70s	.50 – .52
28s	– .25	80s	.60 – .63

MERCERIZED CONES—(Combed, Ungassed)

26s-2	$0.36½–0.38½	90s-2	$0.90
30s-2	.38 – .40	100s-2	1.15–1.25
36s-2	.40 – .42	120s-2	1.50–1.60
40s-2	.42 – .44	30s	.51– .52
45s-2	.42½– .44½	40s	– .56
50s-2	.45 – .47	50s	.61– .64
60s-2	.50 – .52	60s	.70– .73
70s-2	.64 – .66	70s	.80– .83
80s-2	.73 – .75	80s	.92– .96

Cotton Prices and Statistics

COTTON STATISTICAL DATA
(Fluctuations of Futures)

	Closed Jan. 28	For Week High	For Week Low	Closed Feb. 2	Net Ch'ge
February	6.57	6.63	6.57	6.46	—.11
March	6.64	6.79	6.53	6.53	—.11
April	6.71	6.79	6.71	6.61	—.10
May	6.81	6.96	6.69	6.70	—.11
June	6.86	6.96	6.86	6.77	—.09
July	6.97	7.13	6.86	6.87	—.10
August	7.04	7.11	7.04	6.93	—.11
September	7.12	7.17	7.08	7.00	—.12
October	7.19	7.34	7.07	7.07	—.12
November	7.27	7.34	7.27	7.15	—.12
December	7.35	7.50	7.23	7.23	—.12
January	7.42	7.54	7.30	7.30	—.12

SPOT FLUCTUATIONS FOR WEEK
(Middling)

	New York	New Orleans	Liverpool
Thursday, Jan. 29	6.70	6.58	5.49
Friday, Jan. 30	6.75	6.63	5.50
Saturday, Jan. 31	6.80	6.63	5.67
Monday, Feb. 1	6.80	6.66	5.61
Tuesday, Feb. 2	6.60	6.47	5.62

FOREIGN COTTONS
Egyptian Cotton

Alexandria Exchange, Feb. 2.		Change
Mar. Sak	13.58	+0.43
Feb. Uppers	11.12	+0.42

Feb.-Mar. Shipment c. i. f. Boston
(Tariff not included)

Fully good fair Sak (No. 38)	12.75
Fully good fair to good Uppers (No. 10)	10.60

(By Anderson, Clayton & Co.)

Foreign cottons	F. O. B. New York, Cents
Peruvian Tanguis Strict Middling	17⅞
Peruvian Pima No. 1	16
Peruvian Moderate Rough	12
Peruvian Full Rough	17
China Tientsin No. 1	10
India Rough	7 to10
India Smooth	6½ to 7⅛

(By Bruns-Nordeman Co.)

MOVEMENT INTO SIGHT

	This Year	Last Year
Week	389,000	127,000
Season	11,542,000	10,880,000

WORLD VISIBLE SUPPLY

	Jan. 29	One Year Ago
Interior towns and ports of U.S.*	7,089,000	5,692,000
Afloat to and at ports of Europe	1,468,000	1,888,000
Afloat to and at ports of Orient	805,000	337,000
Total	9,362,000	7,917,000
Change during week	Increase 47,000	Decrease 91,000

* Includes afloat to New York.

FORWARDINGS TO MILLS OF WORLD

	This Year Week	This Year Season	Last Year Week	Last Year Season
No. States, U.S.	23,000	472,000	14,000	481,000
So. States, U.S.	109,000	2,739,000	45,000	2,351,000
Total U.S.	132,000	3,211,000	59,000	2,832,000
Great Britain	31,000	627,000	17,000	463,000
Continent	87,000	1,767,000	96,000	1,913,000
Orient	90,000	1,636,000	44,000	664,000
Canada and other America	2,000	106,000	2,000	128,000
Total foreign countries	210,000	4,136,000	159,000	3,168,000
World total	342,000	7,347,000	218,000	6,000,000

EXPORTS FROM UNITED STATES

Total	185,000	4,778,000	78,000	4,419,000

AVERAGE PRICE FEB-MAR., SHIPMENT
HARD WESTERN COTTON
F.o.b. New England

	Middling	St. Middling
1 1/16-in.	8½– 8½c.	8½– 9 c.
1⅛-in.	8½– 9 c.	9½– 9¾c.
1 3/16-in.	9½–10½c.	10½–11c.
1¼-in.	12½–13½c.	13½–14½c.

Basis on New York, March, 6.53.

SPOT FLUCTUATIONS AND STOCKS

Markets	Jan. 27	Feb. 2	Sales	This Week	Last Year
Galveston	6.55	6.45	2,731	978,923	653,458
New Orleans	6.58	6.47	20,763	1,045,167	771,726
Mobile	6.20	6.15	4,821	239,233	197,870
Savannah	6.49	6.43	1,425	302,540	322,947
Norfolk	6.64	6.53	251	68,189	95,498
New York	6.70	6.60	3,325	212,194	228,543
Augusta	6.44	6.31	718	132,256	114,662
Memphis	5.95	5.85	39,854	478,597	369,253
St. Louis	6.35	6.35	.....	.....	15,543
Houston	6.50	6.40	23,374	1,630,866	1,422,342
Dallas	6.10	6.00	37,237	41,967	18,891

DIFFERENCES ON AND OFF MIDDLING WHITE GRADES

	Dallas	Memphis	Montgomery	Augusta	Average
M.F.	0.65†	.75†	0.75†	0.75†	0.72†
S.G.M.	.50†	.50†	.65†	.63†	.57†
G.M.	.40†	.40†	.45†	.44†	.42†
S.M.	.25†	.25†	.25†	.25†	.25†
S.L.M.	.25*	.20*	.25*	.25*	.25*
L.M.	.50*	.50*	.55*	.50*	.53*
S.G.O.**	.75*	.75*	.90*	.88*	.83*
G.O.	1.00*	1.00*	1.25*	1.25*	1.14*
YELLOW TINGED					
G.M.	0.30*	0.25*	0.30*	0.31*	0.28*
S.M.	.45*	.40*	.45*	.44*	.43*
M.**	.65*	.50*	.65*	.50*	.60*
S.L.M.	1.00*	.90*	1.00*	.88*	.95*
L.M.	1.35*	1.40*	1.35*	1.25*	1.37*
YELLOW STAINED					
G.M.	0.65*	0.60*	0.65*	0.50*	0.61*
S.M.**	.90*	1.10*	.90*	.75*	.94*
M.**	1.35*	1.35*	1.35*	1.25*	1.37*
BLUE STAINED					
G.M.**	0.65*	0.35*	0.65*	0.50*	0.60*
S.M.**	1.00*	.85*	1.00*	.88*	.98*
M.**	1.35*	1.10*	1.35*	1.25*	1.34*

**Grades not deliverable on contract.
*Off Middling. † n Middling

Wool

OHIO, PENNSYLVANIA AND WEST VIRGINIA
(IN GREASE)

Fine delne...	$0.24 –$0.24½	¾ blood....	$0.23 –0.24
Fine clthg....	.20 – .21	¼ blood....	.21 – .22
½ blood....	.23 – .24		

TEXAS AND CALIFORNIA
(CLEAN BASIS)

Texas, 12 months	$0.54 –0.56
California, Northern	.46 – .48

PULLED—EASTERN (CLEAN BASIS)

A.A....	$0.58 –$0.60	B-Super...	$0.43 –0.45
A-Super....	.48 – .50	C-Super...	.38 – .42

MONTANA, IDAHO AND WYOMING
(CLEAN BASIS)

Staple fine	$0.56 –0.58
Staple ½ bld.	.53 – .55
Fine and fine medium	.52 – .55
¾ blood	.48 – .50
½ blood	.41 – .43

MOHAIR—DOMESTIC

Best carding	$0.22 –0.26
Best combing	.30 – .32

MOHAIR FOREIGN (IN BOND)

Turkey fair, average	$0.17 –0.21
Cape firsts	.18 – .21

FOREIGN CLOTHING AND COMBING
(CLEAN BASIS IN BOND)

Australia:	
70s	$0.40 –0.42
64s	.31 – .33
58s-60s	.28 – .30

(IN GREASE)

Montevideo:	
58s-60s	$0.17 –0.18
56s	.16 – .17
50s	.15 – .16
Buenos Aires:	
4s, 40-44s	$0.10 –0.11
5s, 36-40s	.09 – .10

FOREIGN CARPET (GREASE BASIS IN BOND)

Aleppo washed	$0.19 –0.20
China: Combing No. 1	.12 – .13
China Filling Fleece	.11 – .12
Szechuen ass't	.12 – .13
Cordova	.09 – .10
Scotch black face (nominal)	.14 – .16
East India: Kandahar	.15 – .16
Vican'r	.19 – .20
Joria	.19 – .20

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 36s	$0.75
2-24s 40s	– .80
2-26s 44s	.82½– .85
2-28s 46s	– .87½
2-30s 48s	.92½– .95
2-32s 50s	.97½–1.00
2-30s 64s fancy mixes	1.25 –1.27½

(Single yarns 5c. less than above)

2-36s 58s	1.05
2-40s, 60s	–1.20
2-40s, 64s	1.27½–1.32½
2-50s, 66s	1.40 –1.45
2-60s, 70s	1.82½–1.85

ENGLISH SYSTEM KNITTING

2-20s, 44s in oil	$0.70 – .72½
2-20s, 48s in oil	.72½
2-20s, 50s in oil	– .75
2-20s, 56s in oil	.92½– .95
2-20s, 60s in oil	–1.00
2-20s, 64s in oil	1.12½–1.15
1-18s, 48s dyed	.87½– .90
1-18s, 50s dyed	.90 – .92½

(Oil yarns 17½c. less)

FRENCH SYSTEM

1-20s, 58s	.97½–1.00
1-20s, 60s	1.02½–1.05
1-18s, 64s, dyed	1.25 –1.27½
1-26s, 64s	1.05 –1.07½
1-30s, 60s, Warp	1.12½–1.15
1-30s, 64s, Warp	1.15 –1.17½
2-30s, 64s, Fancy mixes	1.32½–1.35
2-40s, 64s, Zephyrs	1.25 –1.27½
1-50s, 66s	1.42½–1.47½
2-50s, 66s	1.40 –1.45
1-60s, 70s	1.75 –1.80
2-60s, 70s	1.90 –1.95

FRENCH SPUN MERINO WHITE

1-30s, 50-50-58s on cops	$0.90 – .95
1-40s, 50-50-60s on cops	1.00 –1.02½
1-40s, 50-50-64s on cops	1.02½–1.05
1-40s, 50-50-64s Australian cops	1.10 –1.15

Underwear mixes, 3 to 5c., Solid color, 35c. additional.

New York Top Futures

	Closed Jan. 27	For Week—High	For Week—Low	Closed Feb. 1	Net Ch'ge
February	67.50	68.00	67.50	68.00	+0.50
March	68.00	68.50	68.00	68.50	+0.50
April	68.00	68.00	68.00	68.00	.....
May	68.00	68.00	68.00	68.00	.....
June	68.00	68.00	68.00	68.00	.....
July	68.50	68.70	68.50	68.50	.....
August	68.50	68.70	68.50	68.50	.....
September	68.50	68.50	68.50	68.50	.....
October	68.50	68.50	68.50	68.50	.....
November	68.50	68.50	68.50	68.50	.....
December	68.50	69.00	68.50	69.00	+0.50
January	.....	69.00	69.00	69.00	.....

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$0.78 –0.79
Half-blood (60-62s)	.70 – .73
High ¾ blood (58s)	.66 – .68
Aver. ¾ blood (56s)	.60 – .62
Low ¾ blood	.57 – .58
High ½ blood (50s)	.51 – .53
46s S. A. and N. Z.	.55 – .57
44s S. A. and N. Z.	.50 – .52
40s S. A. and N. Z.	.46 – .48

TOPS — BRADFORD, ENG. (JAN. 29)

Fine (70s)	25½d	¾ bld. (56s)	18 d
Fine (64s)	24 d	½ bld. (50s)	13½d
½ bld. (60s)	23 d	Cross-bred (46s)	10½d

NOILS — BOSTON

Fine	$0.35 –$0.38	High ½ bld.	$0.27 –$0.28
Half-bld.	.32 – .35	Low noils	.21 – .23
Aver. ¾ bld.	.28 – .30	Medium colored	.18 – .20
Fine colored	.23 – .28		

Wool Substitutes

WOOL WASTE

Lap, fine white	$0.60 – .62
Lap, fine colored	.38 – .40
Hard ends, fine white	.43 – .45
Hard ends, ½ blood white	.30 – .32
Hard ends, fine colred	.18 – .20
Hard ends, medium colored	.13 – .15
Card, fine white	.23 – .25
Burr, fine carbonized	.24 – .26

OLD WOOLEN RAGS (GRADED FOR MFRS.)

Merinos, coarse light	$0.04½–0.05
Merinos, fine dark	.02½– .03
Merinos, fine light	.08½– .09½
Serges, blue	.04½– .05
Serges, black	.04½– .05
Serges, red	.07½– .08
Knit, white	.21 – .22
Knit, red	.08 – .08½
Knit, light hoods	.08½– .09
Worsted, light	.03½– .04
Worsted, blue	.05 – .05½
Worsted, black	.05½– .06

Silk Yarns

THROWN SILK (60 day basis)
Prices Nominal

Japan organzine, 2 thd. spec. gd. XX sk 85%	$3.35
Japan organzine, 2 thd. grand sk. 83%	3.15
Japan organzine, 2 thd. sp. crack. sk. 81%	3.00
Japan crepe, 3 thd. gd. XX bob. 83%	3.15
Japan crepe, 3 thd. sp. crack. bob. 81%	3.05
Japan grenadine, 4 thd. sp. grand singles, 87%	4.20
Japan grenadine, 3 thd. 90%	5.20
Canton crepe, 3 and 4 thd. 14/16 on bobbins	2.30
Hosiery tram, 3 thd. Japan 90%	4.10
Hosiery tram 5 thd, Japan, 85%	3.15
Hosiery tram, crack XX 78%	2.85

SPUN SILK YARNS (Terms: net 30)

40/2	$3.10	60/2	$3.45
54/2	3.30	62/1	2.35

Raw Silk

(60 Day Terms. Spot Goods)
Prices Nominal

	13/15 White	20/22 White	20/22 Yellow
Super Grand, 87%	$2.45	$2.20	$2.25
Special Grand, 85%	2.25	2.10	2.15
Grand XX, 83%	2.10	2.00	2.05
Special Crack, 81%	1.95	2.00	2.05
Crack XX, 78%	1.85	1.95	2.00
Extra Extra, 73%	1.80	....	....
Best Extra, 68%	1.70	....	....

Canton filature, new style, 14/16	$1.65
Canton filature, new style, 20/22	1.60
Tussah filature, 8 cocoon	.90

NATIONAL RAW SILK EXCHANGE

	Close Jan. 27	For the Week High	For the Week Low	Close Feb. 1	Net Ch'ge
February	1.67	1.72	1.64	1.72	+0.05
March	1.69	1.78	1.69	1.78	+0.09
April	1.76	1.79	1.73	1.79	+0.03
May	1.76	1.80	1.73	1.80	+0.04
June	1.76	1.79	1.73	1.79	+0.03
July	1.76	1.80	1.73	1.79	+0.03
August	1.76	1.80	1.73	1.80	+0.04
September	1.76	1.80	1.73	1.80	+0.04

Total number of bales, 3,730. Total approximate value, $917,766.50. Trading unit crack XX 13/15 white 78%.

Domestic Rayon

VISCOSE PROCESS

Denier	Filament	First	Second
30	8	$2.25	...
50	12-18	1.35	$1.25
75	18-30	1.20	1.10
100	18-40	1.00	.90
125	36-50	.90	.80
150	30	.72	.70
150	24-44	.75	.72
150	60	.85	.82
150	75-90	.85	.82
170	24-27	.75	.72
170	60	.85	.82
200	30-42	75	.72
300	42-62	.63	.60
450	42-72	.63	.60
600	72-96	.63	.60
900	100-144	.63	.60

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Second Qual.	Denier	First Qual.	Second Qual.
75	$1.35	$1.25	150	$0.75	$0.72
100	1.05	.95	175	.75	.72
125	.95	85			

CUPRAMMONIUM PROCESS

Denier	Filament	Price	Denier	Filament	Price
15	24	$3.10	75	60	$1.30
25	24	2.85	80	60	1.30
30	24	2.60	100	75	1.10
40	30	1.70	120	90	1.00
52	30	1.50	150	112	.90
65	45	1.40	180	135	.87

ACETATE PROCESS

Denier	Price	Denier	Price
45	$1.60	125	$1.10
60	1.50	150	1.00
75	1.40	300	1.00
100	1.30		

Rayon Waste

Open bleached waste	$0.13–$0.14
Open bleached waste	.10½
Bleached thread waste (mfs.)	.09
Bleached thread waste (misc.)	.06– .07
Colored thread waste	.03– .04
Colored clips	.03– .04

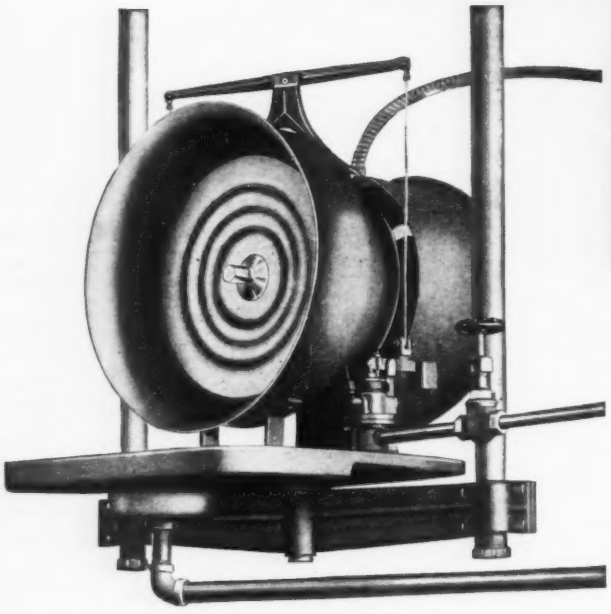
CONVERTED RAYON WASTE

Bleached tops	$0.30–$0.32½
Unbleached tops	.27– .28
Bleached noils	.11
Unbleached noils	.09½
Bleached garnetts	.12
Unbleached garnetts	.13
Colored garnetts	.10– .11

Silk Waste

Kibizzo Kakai Grand XX	0.50
Kibizzo Kakai Triple Extra	.44
Frison Grand Double	.49
Pierced Cocoons	.50

Southworth Humidifiers in the weave room of Botany Worsted Mills, Passaic, N. J.



BOTANY *modernizes with* SOUTHWORTH *Humidifiers*

BOTANY Worsted Mill, known far and wide as a striking example of modern mill operation, chose Southworth Humidifiers for its weave shed. Perhaps it was Southworth's simplicity of operation. Or low operating cost. Maybe their steady delivery and big water capacity convinced the executives of Botany. But on this much you can depend: *Southworth Humidifiers were installed after wide comparison and exhaustive tests!*

Wherever humidity plays a part in your mill, there Southworth Humidifiers, keep the relative humidity under strict control — day and night if you need it—and at the exact figure for efficient operation. They do away with static. They insure the proper regain in yarn. They reduce breakage and save seconds. And above all, they require so little power and attention that operating and maintenance costs are 'way down.

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